DOCUMENT RESUME

ED 446 555 HE 033 393

AUTHOR Wellman, Jane, Comp.; O'Brien, Colleen, Comp.
TITLE Higher Education Cost Measurement: Public Policy Issues, Options, and Strategies. A Compilation of Background Papers Prepared for a Seminar on Cost Measurement and Management. The New Millennium Project on Higher Education Costs, Pricing, and Productivity.
INSTITUTION Institute for Higher Education Policy, Washington, DC.; Teachers Insurance and Annuity Association, New York, NY. College Retirement Equities Fund.
PUB DATE 2000-03-00
NOTE 96p.; The New Millennium Project is sponsored by the Institute for Higher Education Policy, the Education Resources Institute, and the Ford Foundation.
AVAILABLE FROM Institute for Higher Education Policy, 1320 19th Street, N.W., Suite 400, Washington, DC 20036. Tel: 202-861-8223; Fax: 202-861-9307; e-mail: institute@ihep.com. For full text: http://www.ihep.com.
PUB TYPE Collected Works - Proceedings (021)
EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS *Cost Effectiveness; *Costs; Data Collection; Educational Finance; *Expenditure per Student; *Expenditures; Full State Funding; Higher Education; *Public Policy
IDENTIFIERS *Cost Management; Delaware

ABSTRACT

This collection of papers is the result of a project by the Institute for Higher Education Policy designed to explore the public policy aspects of higher education cost measurement (expenditure analysis). Papers come from a 1-day seminar in 1999 that brought together individuals knowledgeable about cost measurement with institutional leaders and policy experts. Participants were asked to focus on the public policy dimensions of cost measurement; the audiences for cost analysis and the purposes and uses they have for it; the necessity for uniform cost reporting; and whether regulatory solutions are needed at either the federal or state level. A preface reviews the papers and summarizes discussions at the seminar. The papers are as follows: "A View from the States: A Survey of the Collection and Use of Cost Data by States" (Mary McKeown Moak); "The Delaware Study of Instructional Costs and Productivity: A Consortial Approach to Assessing Instructional Expenditures" (Michael F. Middaugh); and "An Alternative Look at the Cost Question" (Dennis P. Jones). A seminar agenda and list of seminar participants are also provided. (SM)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 446 555

HIGHER EDUCATION

Cost Measurement

public policy issues, options, and strategies

A Compilation of Background Papers Prepared for a Seminar on Cost Measurement and Management

Sponsored by:
THE INSTITUTE for Higher Education Policy
TIAA-CREF Institute

The New Millennium Project on Higher Education Costs, Pricing, and Productivity

Sponsored by:
THE INSTITUTE for Higher Education Policy
The Education Resources Institute
The Ford Foundation

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
C T O'Brien
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

HE033393

BEST COPY AVAILABLE

2

Higher Education Cost Measurement

Public Policy Issues, Options, and Strategies

A Compilation of Background Papers Prepared for
a Seminar on Cost Measurement and Management

Sponsored by:
THE INSTITUTE for Higher Education Policy
TIAA-CREF Institute

March, 2000

The New Millennium Project on Higher
Education Costs, Pricing, and Productivity

Sponsored by:
THE INSTITUTE for Higher Education Policy
The Education Resources Institute
The Ford Foundation

ACKNOWLEDGMENTS

This publication is based on a seminar on cost measurement and management co-sponsored by The Institute for Higher Education Policy and the TIAA-CREF Institute in the summer of 1999. The seminar was led by Jane Wellman and Jamie Merisotis of The Institute, and Madeleine d'Ambrosio of the TIAA-CREF Institute and Diane Oakley of TIAA-CREF. Terry Kush, Director of Operations at The Institute, directed the planning and preparation for the seminar, with assistance from Mark Harvey, Project Assistant.

We would like to thank all of the seminar participants, particularly the authors of the papers, Mary McKeown Moak of MGT of America, Inc., Michael Middaugh from the University of Delaware, and Dennis Jones from the National Center for Higher Education Management Systems (NCHEMS).

The publication was compiled by Jane Wellman, Senior Associate, and Colleen O'Brien, Vice President, at The Institute, with editorial assistance from Kelly Stern and Institute staff Christina Redmond and Katherine Mills, and was designed by Free Hand Press.

THE INSTITUTE FOR HIGHER EDUCATION POLICY is a non-profit, non-partisan organization whose mission is to foster access to and quality in postsecondary education. The Institute's activities are designed to promote innovative solutions to the important and complex issues facing higher education. These activities include research and policy analysis, policy formulation, program evaluation, strategic planning and implementation, and seminars and colloquia.

For further information, please contact:
THE INSTITUTE for Higher Education Policy
1320 19th Street, NW, Suite 400
Washington, DC 20036
Phone: 202-861-8223
Facsimile: 202-861-9307
Internet: www.ihep.com
Email: institute@ihep.com

FOREWORD

This report is the result of a project undertaken by The Institute for Higher Education Policy—with the active encouragement and support of the TIAA-CREF Institute—to explore the public policy aspects of higher education "cost measurement." Cost measurement, or expenditure analysis, is a technical and arcane topic, and it is as much art as science. Questions concerning the appropriate unit of activity for measuring costs (by student? by faculty? by degree?), the allocation of indirect costs, and the distinctions between operating and capital resources have consumed analysts for decades.

The goal of this endeavor was not to try to resolve these issues, but rather to focus on the public policy dimensions of cost measurement: the audiences for cost analysis and the purposes and uses they have for it; the necessity (or lack of necessity) for uniform cost reporting; and whether regulatory solutions are needed at either the federal or state level. The focus on the policy need for cost analysis has been animated by a sense that the methodological issues have dominated public discussions about costs, leading to the perception that higher education either does not know how to or does not want to measure costs. We believed that a straightforward discussion about how to approach cost analysis for policy purposes could yield some useful strategies for both policymakers and institutional leaders.

To engage this discussion, The Institute and the TIAA-CREF Institute hosted a one-day invitational seminar in Washington, DC, in August of 1999 that brought together individuals who are knowledgeable about cost measurement with institutional leaders and policy experts. Background papers on different aspects of cost measurement were commissioned to help serve as the starting point of the discussion. These papers and a summary of the major themes of the conversation developed by Jane Wellman, Senior Associate at The Institute for Higher Education Policy and convener of the seminar, have been compiled in this document. We hope that they offer some useful insights that will be helpful both within the higher education community and to policymakers. We plan to continue our efforts through The Institute's New Millennium Project and other collaborative work, and we invite reactions and comments on these observations to forward the dialogue.

Madeleine d'Ambrosio
Executive Director
TIAA-CREF Institute

Jamie Merisotis
President
The Institute for Higher Education Policy

5

Table of Contents

FOREWORD 5

PREFACE 6

A VIEW FROM THE STATES
A Survey of the Collection and Use of Cost Data by States
by Mary McKeown Moak 10

THE DELAWARE STUDY OF
INSTRUCTIONAL COSTS AND PRODUCTIVITY
A Consortial Approach to Assessing Instructional Expenditures
by Michael F. Middaugh 28

AN ALTERNATIVE LOOK AT THE COST QUESTION
by Dennis P. Jones 74

SEMINAR AGENDA 92

LIST OF SEMINAR PARTICIPANTS 93

PREFACE
Review of the Papers and Summary of the Discussion

This preface contains a summary of the three background papers that served as a starting point for discussion, as well as a synthesis of the major points of discussion over the course of the day.

The Background Papers

The first background paper, written by Mary McKeown Moak of MGT of America, Inc., describes how states are approaching higher education cost (or expenditure) reporting. Based on a survey of cost analysis and reporting in the 50 states, Moak's paper shows that although there is no lack of reporting about general *finances* across the states, relatively little of it is devoted to *cost* reporting. She also notes that most states collect several different types of data, frequently leading to inconsistencies and confusion because of the different definitions and uses. Not surprisingly, the tuition (price) and financial aid information that is collected is usually disconnected from information about costs, which is one reason why cost analysis rarely is used to answer questions about prices.

Michael Middaugh's paper describes the results of a voluntary inter-institutional effort to share cost information started by the University of Delaware under his leadership. One of the frustrations that most institutions face in understanding their cost structures is the lack of national norms or benchmarks about cost patterns in other institutions that can be used as a context for their own experiences. The Delaware Study of Instructional Costs and Productivity was designed to give institutions a means for comparing their own cost structures with other institutions through a voluntary effort to report costs and share data. Guided by an internal advisory committee, the Delaware project leaders decided they would make the most progress by evaluating direct costs for the instructional function only and not get bogged down in the measurement of costs of research and service. The Delaware project demonstrates that voluntary efforts at cost analysis can have significant benefits for internal institutional planning and analysis.

The last paper, by Dennis Jones of the National Center for Higher Education Management Systems (NCHEMS), argues that the core issue receiving public policy attention should not be cost measurement or analysis in relation to price, but the differential allocation of public subsidies. He asserts that the issue primarily involves public institutions at the state level; therefore, policy attention should be focused here rather than at the federal level. Jones suggests that the traditional approaches to cost evaluation taken by state government and public institutions always lead to impasse and frustration because institutions provide information that is appropriate only for internal purposes, is more detailed than is necessary, and invites micromanagement by state officials without revealing much about subsidy patterns or the factors that drive costs.

Themes from the Seminar Discussion

The August seminar discussion focused on problem definition and strategies for solutions. Seminar participants were asked: what is the *problem* (if any) in how higher education measures costs? In particular, what is the *public policy need* for improved cost measurement? Are there solutions or *future strategies* that can be usefully engaged? While there was not complete consensus on these matters, the following themes summarize the discussion.

The Problem: The "problem" can be summarized as the tension between public accountability demands and the reality that costs are complicated and there is an internal incentive structure that leads institutions to avoid being clear about them. There are several subsets to this overarching problem, including issues of measurement, audience, and culture:

Measurement: The measurement of costs in higher education is truly complex because of the nature of the higher education production function, the joint products of teaching, research, and service, and the multiple revenue sources. The complexity of the enterprise should not be masked out of concern for simplicity and ease of public communication. There is substantial consensus within the higher education community about how to measure costs, as well as general agreement about what drives costs: revenue (institutions spend what they receive), discipline mix, and the proportion of revenues spent on direct instructional costs in contrast to "unfunded" research, institutional service, and administration. Despite this consensus, widespread understanding about cost measurement does not exist either within higher education or in public policy circles. Confusion about costs can lead to poor decisionmaking within institutions, particularly when institutions confuse costs with revenues and decide to start high cost programs in the belief that more revenues will result.

Another dimension of this issue is the availability and comparability of data. There is a tension between standard reporting formats that invite a good deal of institutional latitude about how to assign costs and the need for comparability for public policy purposes. The diversity in types of institutions means that institutional discretion in assigning expenditures to cost categories is appropriate. However, as a result of this respect for autonomy, comparisons of costs between institutions are hard to make. The Delaware Study is an example of a successful cooperative effort to use standard reporting formats in order to obtain comparable data for internal purposes.

The goal of comparability in reporting for public purposes will continue to be elusive and may never be met. Standard reporting formats that are promulgated by the Financial and Governmental Accounting Standards Boards (FASB and GASB) and the U.S. Department of Education are being refined constantly. These refinements will perpetuate the problem of comparability and ensure that consistent trend data are difficult to find because the measures keep changing. For example, the changes in financial standards being contemplated by GASB will make it easier for institutions to do "full-cost" reporting, including the costs of capital investment. They also are likely to permit wide variability between institutions in how data are reported. The new GASB reporting guidelines permit three different methodologies for institutions to report expenditures: fund accounting, standard business unit cost accounting, or a combination of the two.

To wait until the data definitions are finalized is to postpone perennially any cost analysis. The slight changes in data over time mean that absolute comparability, even within a single institution, will never be achieved. Despite these imperfections, cost analysis is still a powerful tool for making broad comparisons and for understanding financial patterns over time.

Audience: Protocols for cost measurement should be customized to meet the needs of different audiences who want cost data for different purposes. Several kinds of measures are needed, depending on the intended uses of the data collected. Cost analysts tend to search for a level of precision and detail that is unnecessary for policy purposes, which perpetuates the perception that costs are being obscured. As one participant said, "Higher education measures with a micrometer, marks with chalk, and cuts with an axe." Higher education gets itself into "trouble" if it tries to use instruments that are designed for internal purposes for public purposes as well, and vice versa. Trying to develop a "one size fits all" tool with comparability of data as its primary goal is likely to be self-defeating.

There is an increased demand for public accountability, and cost data are part of this. Some participants felt that the external environment and new pressures for accountability are materially different from what higher education has experienced previously, and therefore new strategies are required to ensure the public trust. Others noted that governments have been calling for accountability for the last 30 years and that current strategies are working fairly well to meet those demands.

Policymakers, particularly at the state level, rarely define the terms behind their questions. There is a strong tendency for data to be collected, but not used. Infinitely complex calibrations of cost data are not what is needed, since we have learned that the public is not concerned about the details. Several of the participants commented that most state-level decisions are not based on data in any event.

Culture: There are cultural habits and attitudes inside higher education that influence behavior within institutions and with external audiences that are real barriers to more transparent communication about costs. At the state policy level, institutional managers are hesitant to provide detailed cost data for fear of inviting micromanagement by state officials, particularly because of concerns about unfunded research. But the concerns are probably even greater within institutions, where faculty and others react to any measurement with the Lake Wobegon syndrome: everyone has to be above average.

The Public Policy Focus: Seminar participants felt that useful distinctions could be made between three different but related dimensions of the cost measurement problem: the public *political* issue, the primary *policy* issue, and the *institutional* level issue. The *public political issue* is the widespread concern about college prices, much of which is animated by media attention to the higher priced private institutions. The primary *public policy issue* is the future matching of public subsidies with public priorities; and the *institutional issue* is the inadequate understanding by too many institutions of their own cost structures. There was consensus that the primary public policy need for cost measurement is at the state level with respect to public institutions. However, much of the attention has been at the national level in reaction to the primary political problem, which has led to justification of price structures in private institutions through analysis of public subsidy patterns. The seminar participants generally believed that analyzing subsidy structures—explaining prices in relation to costs—was not a useful way to answer the primary public policy question, and that a focus on explaining the differential allocation of public subsidies in terms of public priorities would be more beneficial. The public policy question will never be successfully engaged if it continues to be framed as one of cost analysis or cost measurement, since this invites detailed and technical answers, which leads to micromanagement by state officials.

What state officials ought to be worried about is how public subsidies are used in support of future strategic investment priorities, or where the benefits from investment of limited public subsidies are likely to have the greatest impact. In most states, the key priority is investment in undergraduate education; many lawmakers do not have research or service as a priority. Many public policymakers perceive that they are paying for things that they do not want to buy, although when pressed they will admit they want prestige and economic development, both of which are associated with research. Dwelling on how resources have been used in the past also leads to unnecessary defensiveness about what are legitimate uses of resources, even if they may not be priorities for limited funds in the future.

The Future Agenda: Based on the sense of the discussion, several participants suggested two distinct paths for future work to improve the use of cost information: one to strengthen internal institutional management, and the other to address public policy needs. Within institutions, the primary goal of cost measurement should be to answer questions about program costs and cost drivers and

to inform future decisions about internal reallocation of resources. Governing boards and presidents should be leading this agenda. Projects that encourage the use of cost measurement and benchmarking with comparable institutions such as the University of Delaware study will be particularly helpful for these purposes.

At the state level, the primary goal of cost measurement should be to inform strategic investment decisions between potential candidates for public subsidies. Many states are facing difficult choices about how to manage scarce resources to meet future demand for higher education. Information about the relative cost and intended use of different subsidies will be very helpful in engaging discussions about whether to subsidize institutions, functions, or students. State higher education executives, state governing and coordinating boards, and legislative officials should be interested in this agenda. One way to begin to initiate this process can be through a reevaluation of existing state-based requirements for financial and cost reporting, seeking to eliminate redundant collection and to reevaluate the uses of cost information.

A VIEW FROM THE STATES
A Survey of the Collection and Use of Cost Data by States

Mary McKeown Moak

Introduction

This report on state use of higher education cost data[1] is part of The Institute for Higher Education Policy's multi-year, Ford Foundation-funded New Millennium Project on Higher Education Costs, Pricing, and Productivity. It is appropriate that the Ford Foundation should sponsor this project, as it formerly supported (in conjunction with the Exxon Education Foundation) Howard Bowen's seminal work, *The Costs of Higher Education*.[2] In this volume, Bowen pointed out that colleges and universities spend what they raise the revenue theory of costs meaning that costs in higher education are determined by revenues.

Higher education costs have received heightened scrutiny in the last several years. For example:

- The National Commission on the Cost of Higher Education focused congressional and public attention on higher education costs and demanded increased accountability;
- Many state legislatures are requiring accountability and performance measures linked to institutional costs;
- A recent report of the National Center for Public Policy and Higher Education, *Taking Responsibility: Leaders' Expectations of Higher Education*,[3] surveyed business leaders across the country on the problems of higher education; and
- The National Association of College and University Business Officers (NACUBO) focused several efforts on institutional costs, including the Benchmark Program, which provides comparative baseline data to generate discussion of best practices among peer colleges.

This report discusses how states collect, analyze, and use higher education cost information, and provides data on the range of methodologies and uses of the data by states. Each state higher education coordinating or governing board was surveyed as to what kinds of data states collect, at what level of detail, and how and by whom the data are used. Each of these issues is discussed in the following sections of this report.

Section Two provides a general discussion of higher education cost data, as well as definitions for categories of college and university expenditures or costs. Section Three includes a discussion of the survey results. Section Four discusses limitations in the state use of cost information. Definitions of terms used in the report are included in the glossary, and a copy of the survey instrument can be found at the end of the paper.

An Overview of Higher Education Costs

What does higher education cost? State officials may answer this question from a variety of perspectives, using several different definitions. Does cost mean what a student spends to get an education? Does it mean expenditures per student where "expenditures" is defined as the total spent by all higher education in a state or as the total spent at one institution? Does it mean total state appropriations? Does it mean state appropriations per student at a single institution? Does

it mean expenditures per credit hour? Does it mean expenditures per credit hour in each discipline?

Which of these questions or any others state officials ask depends upon what public policy issue they are trying to address. In each case, however, state officials would seek data that have common definitions, are used in a common context, and can be verified as valid and reliable.

All colleges and universities expend resources to acquire goods and services so they can operate, just as each person expends income to acquire goods and services to live. The combination of all expenditures made by a college or university over a particular time period is the cost of operating the institution for that time period. This may be expressed as the institution's total cost, or total expenditures, or it may be expressed as a cost per student, per faculty member, per square foot of space, or some other unit of measure. If costs across institutions or over time are to be compared, they need to be expressed in terms of a unit of service, such as per student, per faculty member, or per credit hour.

If cost comparisons are to be made between institutions or over time at the same institution, the data must be measured or reported consistently. Colleges and universities in the United States use a consistent method of categorizing revenues and expenditures. Universities maintain financial records according to the principles of what is called "fund accounting." Fund accounting puts all financial resources into "funds" according to limitations providers placed on their use. A "fund" is a self-balancing set of accounts with its own set of revenues, expenditures, transfers, assets, liabilities, and balance.

Universities typically combine their funds into a current operating fund, the category for the institution's day-to-day operations; plant funds; loan funds; endowment and similar funds; annuity and life income funds; and agency funds. Current funds are those economic resources expended for carrying out colleges and universities' primary missions (instruction, research, and public service); these are the subject of this report. (See the glossary for definitions of each of the fund groups.) In general, colleges receive funds from five major sources:

- students, in the form of tuition and fees;
- the state, as appropriations or as grants and contracts;
- the federal government, as appropriations or as grants and contracts;
- local government, as appropriations or as grants and contracts; and
- individuals and businesses, as gifts, grants, and contracts.

Colleges and universities also receive some revenue from the sales of educational goods and services, from the sales and services of auxiliary enterprises, from endowments or investment income, from hospitals, and from independent operations. Current funds may be unrestricted or restricted. Unrestricted current funds are those resources received on which no limitations or stipulations have been placed by external agencies or donors. Similarly, restricted current funds are those that have externally established limitations or stipulations on their use. (Additional information on the fund sources may be found in the glossary.)

Colleges and universities classify their current operating fund expenditures into the following categories:

- instruction;
- research;
- public service;
- academic support;
- student services;
- institutional support;
- operation and maintenance of plant;
- scholarships and fellowships;

- mandatory and non-mandatory transfers;
- auxiliary enterprises;
- hospitals; and
- independent operations.

All colleges and universities in the United States, whether publicly or privately controlled, are required to report information on their revenues and expenditures to the National Center for Education Statistics (NCES), a component of the U.S. Department of Education. Colleges and universities use common definitions to categorize sources and uses of funds. The categories used are defined by the National Association of College and University Business Officers (NACUBO), in conjunction with the American Institute of Certified Public Accountants (AICPA), the Financial Accounting Standards Board (FASB), and the Governmental Accounting Standards Board (GASB).

Data are collected through the Integrated Postsecondary Education Data Survey (IPEDS) Financial Survey. All colleges and universities receiving any federal funding, including student financial aid, are required to report IPEDS data as a condition of receipt of funds. In addition to financial data, colleges and universities report information describing their campus(es), students, faculty and staff, faculty salaries, graduates, and libraries. NCES makes these data available on its website, http:// www.nces.ed.gov.

Colleges and universities report IPEDS data consistently, both within a year and across years. The IPEDS database makes cost and other comparisons among colleges and universities possible. Certain idiosyncrasies in the data do exist,[4] but users of the information can be assured that the data are reported consistently, for the most part. However, IPEDS data are not differentiated sufficiently to enable cost comparisons among academic disciplines or non-academic departments. Because the expenditure information reported to NCES typically is at the program or category level (i.e., instruction, research, etc.), college and universities maintain more detailed data so that reports can be completed for IPEDS and other entities that require greater levels of detail. For example, for the last 20 years the Southern Regional Education Board (SREB) has maintained a database on higher education costs in member states. The SREB database is called the Data Exchange. State officials, usually at the "SHEEO (State Higher Education Executive Officer) agency," report information to the Data Exchange by category of institution by type of expenditure. Some SREB states, such as Alabama and Kentucky, have used the regional cost data to "benchmark" appropriations per student or faculty salaries.

Data collected by each state may be even more detailed and may provide information on *objects of expenditure* by academic program level. An object of expenditure is a classification system for expenditures. Typically, university expenditures are categorized as salaries and wages; other employee costs, including retirement and insurance; travel in- and out-of-state; postage and delivery charges; supplies; telecommunications; contracts; utilities; student financial aid; and equipment. Colleges also maintain data on sub-objects of expenditures, e.g., water, electricity, or fuel oil within the "utilities" object.

Federal, state, and local governments may use cost information to make appropriations, grants, or loans, or for other legal matters. Foundations, businesses, governments, and others who make grants to colleges and universities may want cost data, according to their own definitions. To satisfy all of these various constituencies, colleges and universities maintain data on costs at very detailed levels of expenditure.

All states use higher education cost information to allocate resources to higher education. This is arguably the most important use of cost information. Which agency collects the cost information varies from state to state. In some states, the legislature, either through committees or budget offices, collects cost data; in other states, an

executive budget office or the statewide coordinating or governing body for higher education may collect it. For state resources to be allocated efficiently and effectively, a state agency must determine the costs or expenditures for goods and services provided by higher education (as well as the other components of state government).

But state policymakers are interested in higher education costs from a variety of other perspectives as well. Some questions state policymakers may want to address through the use of cost data include the following:

- What should colleges spend to educate students and/or provide other services?
- How much, if any, of those expenditures should be supported by the state?
- Should all colleges and universities in a state receive the same appropriation per student?
- Could a college or university provide an acceptable level of services with less money per student?
- Should a college or university receive additional public resources?
- Should faculty and staff receive higher salaries?
- Should faculty and staff salary increases be the same as, less than, or more than other state employees'?
- Why does one college spend twice as much per student as a similar college in another part of the state?
- Does it cost more to provide instruction in one discipline than in another?
- Does it cost more to provide graduate-level instruction?
- Should it cost more?
- Why does it cost more?
- Why are the higher education costs increasing more rapidly than other state expenditures? Should they be?

State policymakers also may use higher education cost data to:

- control the operations of colleges and universities;
- evaluate performance;
- determine the "price" of higher education, i.e., tuition and fees;
- determine indirect cost recovery;
- plan for the near and long terms; and
- make interinstitutional comparisons.

Each of these uses requires that data be reported consistently among institutions and over time. Political and/or social contexts must be considered in developing methodologies to measure costs.

In some contexts, state officials are concerned only with the "direct" costs of higher education, rather than the "indirect" or "full" costs. Direct and indirect costs together are full costs. Typically, the direct costs of instruction are those expended in the instruction program, for faculty salaries and classroom support. In addition, the costs encompassed in the academic support program, which includes libraries, computing, and deans' offices, may be considered to be direct costs of instruction. On the other hand, the costs of running the physical plant, maintaining an accounts receivable office, and soliciting outside gifts are considered indirect. Among institutions, the relative proportion of direct and indirect costs may vary.

State Use of Cost Data

This section discusses the survey results on state use of cost data. MGT of America, Inc. distributed a survey to the agency in each state designated the state coordinating or governing board for higher education; the survey was addressed specifically to the person responsible for cost data, the "State Higher Education Finance Officer" (SHEFO). Each SHEFO was asked to provide any additional

information that would provide a complete picture of how state officials use higher education cost data. Survey results were obtained from every state.

State Data Collection Efforts

Every state collects higher education cost data, but there are variations as to which state agencies collect the data, when data are collected, how data are used, and the level of detail at which data are collected. Figure One displays information on state higher education cost data collection efforts.

At the state level, the governor's office or an executive budget office may collect cost data. In addition, the legislature and its budget committees, the SHEEO agency, a system governing board, or another statewide board may collect higher education cost data. Among the states, cost data is collected by 82 percent of SHEEO agencies, 62 percent of legislatures or budget committees, 22 percent of governor's or other executive budget offices, 54 percent of system governing boards, and 8 percent of other statewide boards. In two states, all of these agencies collect some kind of higher education cost data.

However, use of higher education cost data is not limited to the state agency or agencies that collect the data. (See Figure One). For example, although only 41 of the 50 SHEEO agencies collect cost data, 44 use it. Similarly, 94 percent of state legislatures or legislative committees use cost data, while 48 percent of executive budget offices and 54 percent of system governing boards use it. Ten percent of "other statewide boards," such as community college coordinating boards, use higher education cost information.

Data Collected and Data Uses

Each state appears unique in terms of the data it collects and the uses it makes of higher education cost data. Data collected through one effort may be used for multiple purposes, and multiple data collection efforts may support only one use of data. For example, data collected in budget documents may be used in the state budgeting or appropriations process, in academic program reviews, in funding formulas, in peer analysis, in the tuition-setting process, and in faculty salary setting; the state budgeting and appropriations process may use data collected from regional or special cost studies, strategic planning materials, or statewide accounting systems. (See Figure Two for information on state officials' use of higher education cost data and how the data are collected).

Although every state collects cost data for the purpose of determining state appropriations, states are not as likely to use cost data for performance evaluations or to complete unit cost analyses or program reviews. Data collected for budgeting or appropriations purposes are not as detailed as those needed to complete unit cost analyses or program reviews, or to set tuition as a percentage of "cost."

Budget or Appropriations Process: All states collect higher education cost information for use in their annual or biennial state budgeting or appropriations process. If the state is on a biennial budget calendar, data usually are collected every other year. In the "other" year of the biennium, the state may collect other cost data for other purposes, such as program evaluation. In these cases, the cost data collected may be more detailed than those data needed specifically for the budget or appropriations process.

Not all states collect cost data utilized in the state budgeting or appropriations process through budget documents. Only 44 of the 50 states collect information from budget documents that is used to support the state budget or appropriations process. Delaware uses cost data from the SREB Data Exchange to support the budget process, while Florida uses not only the SREB Data Exchange but also data collected through a biennial cost study. Hawaii, Utah, and Wisconsin utilize data from special or annual/biennial cost studies, and West Virginia uses the SREB Data Exchange as well as strategic planning documents. These differences reflect variations in the states' political climates and decisionmaking processes.

State Collection and Use of Higher Education Cost Data

	WHO COLLECTS HIGHER EDUCATION COST DATA?					WHO USES HIGHER EDUCATION COST DATA?					
State	SHEEO Agency	Other Statewide Board	Legislature/ Legislative Committee	Gov/Exec Budget Office	System Governing Board	SHEEO Agency	Other Statewide Board	Legislature/ Legislative Committee	Gov/ Exec Budget Office	System Governing Board	Other
Alabama	1	1	1	1	1	1	1	1	1	1	
Alaska	1		1	1	1	1		1	1	1	
Arizona	1	1	1	1	1	1	1	1	1	1	
Arkansas	1					1		1	1	1	
California	1		1	1	1	1		1	1	1	
Colorado	1		1		1	1		1	1	1	
Connecticut	1		1			1		1			
Delaware	1					1		1	1		
Florida		1	1		1	1	1	1	1	1	
Georgia	1		1	1	1	1		1	1	1	
Hawaii	1				1	1		1		1	
Idaho	1		1			1		1			
Illinois	1	1	1		1	1		1	1	1	
Indiana	1		1	1		1		1	1		
Iowa	1		1		1	1		1		1	
Kansas	1		1			1		1			
Kentucky	1		1			1		1	1		
Louisiana	1		1			1		1		1	
Maine			1					1			
Maryland	1		1	1	1	1		1	1	1	
Massachusetts	1					1		1	1		
Michigan			1		1			1	1	1	
Minnesota				1	1	1		1	1	1	
Mississippi	1		1		1	1		1		1	
Missouri	1		1			1		1			
Montana	1		1		1	1		1		1	
Nebraska	1					1		1			
Nevada	1				1	1					
New Hampshire	1							1			
New Jersey	1			1		1		1	1		
New Mexico	1		1			1		1			
New York	1				1	1	1	1	1	1	
North Carolina	1		1		1	1		1		1	
North Dakota	1		1			1		1			
Ohio	1					1		1			1
Oklahoma	1		1		1	1		1			
Oregon	1		1		1	1		1		1	
Pennsylvania				1	1	1			1	1	
Rhode Island			1					1			
South Carolina	1				1	1		1	1	1	1
South Dakota	1					1		1			
Tennessee	1		1			1		1			
Texas	1		1		1	1		1	1	1	
Utah	1					1	1	1	1		
Vermont					1			1		1	
Virginia	1			1		1		1	1		1
Washington	1		1			1		1			
West Virginia					1	1		1	1	1	
Wisconsin	1				1	1				1	
Wyoming			1		1			1		1	
Total	**41**	**4**	**31**	**11**	**27**	**44**	**5**	**47**	**24**	**27**	**3**

BEST COPY AVAILABLE

Uses of Higher Education Cost Data

	HOW ARE COST DATA USED?							HOW ARE COST DATA COLLECTED?					
State	State Budget Process/ Appropriation	Funding Formulas	Productivity/ Performance Measures	Faculty Salary Setting	Academic or Other Program Reviews	Peer Analysis	Tuition Setting Process	Budget Documents	Special Cost Study	Annual/ Biennial Cost Study	Regional Cost Study	Strategic Planning Materials	Other
Alabama	1	1				1		1	1	1	1		
Alaska	1							1					
Arizona	1	1	1	1	1		1	1	1				
Arkansas	1	1	1					1		1	1		1
California	1	1						1					
Colorado	1	1	1					1	1				
Connecticut	1	1	1					1					
Delaware	1					1					1		
Florida	1	1	1	1	1	1				1	1		
Georgia	1	1		1				1			1		
Hawaii	1		1		1		1		1				
Idaho	1	1						1					
Illinois	1		1	1				1		1			
Indiana	1	1	1					1					
Iowa	1		1					1					
Kansas	1	1						1	1				
Kentucky	1	1	1	1		1		1		1	1		
Louisiana	1	1						1		1	1		
Maine	1		1					1					
Maryland	1	1	1		1	1		1	1		1		
Massachusetts	1	1				1		1					
Michigan	1							1					
Minnesota	1	1	1				1	1		1			
Mississippi	1	1						1			1		
Missouri	1	1	1					1			1		
Montana	1	1		1		1	1	1		1			
Nebraska	1	1						1					
Nevada	1	1				1		1					
New Hampshire	1							1					
New Jersey	1		1			1		1	1				1
New Mexico	1	1	1					1					
New York	1	1	1		1			1					1
North Carolina	1							1			1		
North Dakota	1	1						1					
Ohio	1	1	1					1		1			
Oklahoma	1	1	1					1		1	1		
Oregon	1	1	1					1	1				
Pennsylvania	1	1	1	1		1		1	1				
Rhode Island	1							1					
South Carolina	1	1	1		1	1		1	1	1	1		
South Dakota	1	1					1	1	1				
Tennessee	1	1	1			1	1	1		1	1		
Texas	1	1	1					1	1	1	1	1	
Utah	1	1	1				1			1			
Vermont	1							1					
Virginia	1	1	1	1	1	1	1	1			1		1
Washington	1			1		1	1	1	1				
West Virginia	1	1		1		1	1				1	1	
Wisconsin	1		1		1	1				1			
Wyoming	1							1					
TOTAL	50	35	27	10	8	16	10	44	13	15	17	2	4

BEST COPY AVAILABLE

States that appropriate funds annually collect budget and/or other cost data every year. In an annual budget process, at least three years' worth of data typically are collected, including the most recent year for which actual expenditure data are available, the current year (displayed as "appropriated" or "budgeted" amounts), and the year of the budget request. For states using a bienniel process, data for three bienniums typically are displayed. However, several states require two or more years' worth of actual revenue and expenditure data, and a few require more than two years into the future are quite fluid an dlikely will change before they are used in budgetary decisionmaking processes.

The level of detail in data collected for the budget process varies significantly across the states. Cost data may be as detailed as by academic program by object of expenditure, or as general as a lump sum amount for a statewide system. More states collect cost data by funding source and by program expenditure or by object of expenditure within program than by any other level of detail. Using objects of expenditure enables budget officials to "roll up" all the costs of a particular program or object statewide and to report the total program cost or object of expenditure in the state budget. For example, many state budgets report administrative costs, personnel costs, or even electricity costs statewide.

More than 80 percent of the states include other information along with revenue and expenditure data for budget documentation. Each college or university, or each system of colleges and universities (such as the University of Texas System or the Texas A & M System), may report information on number of students, credit hours taught, faculty salaries, number of faculty members, number of buildings, acres maintained, and other data. Legislative and executive budget offices use these data to answer some of the questions posed earlier in this paper, such as "Does it cost more to provide instruction in one discipline than in another?" or "Does it cost more to provide graduate-level instruction?"

Data on the number of students, for example, may be used to calculate the cost per headcount student or the cost per full-time equivalent student. Data on the number of credit hours may be used to calculate the total cost per credit hour, the instructional costs per credit hour, or the cost per credit hour for each academic discipline by level of instruction. These data are used to compare one institution to another and to form the basis of recommendations regarding cost reduction or funding adequacy.

In a typical data submission for the state budgeting or appropriations process, supplemental information includes the following for each year:

- number of headcount students;
- number of credit hours generated by level of student (from which full-time equivalent students are calculated);
- number of faculty members;
- numbers of other staff, by type of staff;
- financial aid awarded, by type of financial aid;
- gross and net assignable square feet of buildings;
- number of buildings and acres maintained;
- number of degrees awarded;
- number and dollar amount of grants received,
- number of library books purchased;
- other library information;
- technology data, such as number of student computer stations;
- student services program data; and
- number of administrative staff.

A trend in legislative requirements appears to be identification of administrative costs. Some states, including Arizona, now require that numbers of administrative personnel and total administrative costs be delineated separately in the budget submission.

Funding Formulas: In 35 states, cost data are collected for use in funding guidelines or formulas. In these states, funding guidelines or formulas are one component of the budgeting or appropriations process. But true formula funding—where the appropriation is determined completely by a formula (or formulas)—is used by less than 10 percent of the states. Almost every state that uses a formula has competitive or categorical funds that are appropriated outside of the formula. For example, although the Maryland Commission on Higher Education uses funding formulas to make recommendations for universities, appropriations follow the governor's recommendations and include special line items.

Cost data used in funding formulas are, of necessity, quite complex. Funding formulas are designed to distribute an adequate amount of funds equitably to the colleges and universities in a state. Because no two colleges or universities are alike, funding formulas became more elaborate to adjust appropriately for differences between institutions. Differences in institutional missions and in institutions' capacities to perform their missions make the design of an optimal formula even more complex.

Because formulas typically are enrollment driven, data collected for use with funding formulas involve measures of student count, including credit hours by discipline by level, headcount students, or graduates. Data are collected for each program area (instruction, academic support, plant operation, etc.), and a funding recommendation is developed from the data.

To derive a funding formula, very detailed cost data must be collected, or staff must adapt the formula(s) used by other state(s) to capture the particular circumstances of their own state. If the data are collected, a detailed cost study must be completed.

Cost studies, if done right, involve the faculty at each institution. To derive accurate costs of delivering instruction at each level by discipline, faculty workloads must be studied, and costs attributable to the instructional component of workload must be separated from costs attributable to research and public service. Statewide committees typically are responsible for developing the data collection instrument and the algorithms needed to allocate faculty salaries and other departmental costs by level of instruction. Each faculty member then is surveyed to determine how he or she spends time. Because this is a time-intensive task, most states do not complete annual cost studies. Although 32 of the 35 states that reported that they use funding formulas collect data through cost studies (not all of the cost studies are used in conjunction with funding formulas), a detailed faculty workload study may not be included.

In areas other than instruction, cost data are collected on items that may include:

- numbers and salaries of staff in each non-instructional department;
- number of library books purchased, and total cost;
- equipment costs by program;
- costs of technology and numbers of computers available;
- gross square feet of buildings maintained;
- numbers of acres maintained;
- research grants received;
- number of admissions applications;
- type of building construction; and
- utility costs.

Exhaustive data on the library and physical plant may be maintained. For example, the Texas Higher Education Coordinating Board, the State University System of Florida, and the California State University System collect detailed cost data on buildings at each institution. Data include square footage by type of room, construction information on the building, other capital costs, equipment costs, fixtures and other non-

movable equipment costs, construction type, air conditioning, and building usage. All of these data are combined into a formula to derive a recommended cost for operation of an institution's physical plant.

Productivity or Performance Measures: The SHEFOs in 27 states reported that state officials use cost data in productivity or performance measures. The types of performance or productivity measures vary from state to state, as does the information collected. In general, cost data collected for use as productivity or performance information are at a more detailed level of expenditure than data used for other purposes. Data for the purpose of productivity or performance measures are collected through state budget documents, strategic planning materials, statewide accounting systems, and special cost studies.

South Carolina is the only state that professes to base 100 percent of its allocation of the state higher education appropriation on performance measures or performance funding. To determine an institution's performance, the South Carolina legislature mandated a system of 37 performance measures or criteria. Clearly, such a complex system requires the reporting of significant amounts of cost and other data. In fact, this system has a cost of its own that critics contend is diverting resources from the basic mission of each institution. Cost data collected include: expenditures to achieve institutional mission; faculty compensation; administrative costs; general overhead costs; financial expenditures for teacher education reform; and amounts expended on research grants.[5]

The other 26 states that use cost data for performance or productivity measures allocate up to five percent of the higher education budget on the basis of productivity or performance. However, even though a smaller percentage of the state appropriation may be based on performance data, cost data collected in the other 26 states typically are just as complex as those used in South Carolina. For example, Illinois collects extensive data on both direct and indirect instructional costs from all public colleges and universities. Reports display information on the cost per credit hour by level of instruction by discipline by object of expenditure. Direct costs are displayed separately from indirect costs.

Cost data or expenditure analysis in Florida details expenditures by university, unit, program component, discipline, academic activity, and instructional level. Numbers of "personyears" are displayed for the direct and indirect costs of each institutional component. Wisconsin collects cost data by discipline by level of instruction by object of expenditure for each of its campuses. Similarly, all 16 states that are members of the Southern Regional Education Board collect detailed cost data; nine of the states use the data for productivity or performance measures.

Peer Analysis: The next most common use of cost data is for peer analysis; 16 states reported using peer cost data to compare funding and expenditure levels and to determine an adequate funding level. Such analysis may be completed as part of the budgeting and resource allocation process, as one component of a funding formula, in academic program reviews, and/or in faculty salary setting. (Use of cost data in peer analyses for academic program reviews and faculty salary setting is discussed below.)

In Alabama, Delaware, Florida, Kentucky, Maryland, Montana, New Jersey, South Carolina, Tennessee, and West Virginia peer analysis is part of the budgeting and appropriations process or formula-funding calculations. Detailed instruments are used to collect cost data from peers, an effort that requires cooperation and participation by peer states and/or institutions. Alabama, Delaware, Kentucky, Tennessee, and West Virginia use peer data from the SREB Data Exchange to minimize data collection efforts. Other states use IPEDS expenditure data to complete peer analyses.

Faculty Salary Setting: Ten states reported using cost data for faculty salary setting. Generally, cost data used for this purpose are both total institutional expenditures for faculty salaries and also salaries

by faculty rank and/or discipline. Both pieces of information are needed because some institutions hire fewer faculty members but pay them higher salaries. In effect, these institutions require faculty to teach more hours in exchange for higher pay.

Four main sources of cost data are used to set faculty salaries:

- the IPEDS salary survey, as reported each year by the American Association of University Professors (AAUP);
- the Oklahoma State University Salary Survey;
- the College and University Personnel Association (CUPA) Salary Surveys; and
- the University of Delaware Salary and Faculty Productivity Survey.

IPEDS (or AAUP) salary data are reported by faculty rank (professor, associate professor, assistant professor, instructor, and lecturer) for each college or university that has faculty ranks and as an "all ranks average" for those without. In addition to data for each institution, AAUP reports averages for types of institutions, where the types are defined by AAUP. Data are available by gender and for total compensation as well as for salary alone. The value of the IPEDS/AAUP data is that they enable comparisons between specific institutions with all institutions of a particular type. The biggest limitation of the IPEDS/AAUP data is that they are not available by discipline.

The Oklahoma State and University of Delaware surveys do provide data on faculty salaries by rank by discipline. However, not all institutions participate in these surveys, and data are not available on an institution-by-institution basis. For a fee, peer group information can be obtained, but specific institutions cannot be identified. The University of Delaware survey also provides limited information on faculty workload and productivity measures.

Tuition Setting Process: Ten states reported that cost data are used in the tuition setting process. These states relate tuition and fee charges to the "cost of education" (COE) by setting tuition as specified percentages of the COE. Generally, undergraduate resident tuition is set at an amount not to exceed 25 to 33 percent of COE, and undergraduate non-resident tuition is set to approximately 100 percent of COE. Percentages for graduate education vary.

Cost of education is defined somewhat differently in each of the states. In Arizona, for example, COE is defined as the average state expenditure made to educate a full-time equivalent student for one academic year. Capital outlay costs including new construction, debt service, and deferred maintenance expenditures are not included in the calculation. Two measures of the COE are reported: one that includes all state expenditures except capital outlay, and one that also excludes state expenditures for research and public service.

Minnesota used to relate tuition charges to a student's specific COE. To do this, the cost of providing one credit hour of instruction was calculated for each discipline by level of instruction. A student's tuition then was set equal to a specified percentage of the sum of the credit hour costs for those credit hours for which the student was registered. This tuition system required an immense, complex database. Minnesota eventually abandoned this system because the maintenance costs were judged prohibitive.

Academic or Other Program Reviews: Eight states reported that cost data are used for academic or non-academic program reviews. Data for these purposes are collected as part of the budgeting documentation or by cost studies and typically involve peer comparisons. Program reviews require detailed cost information, and collecting data from peers can be problematic.

Each of the eight states—Arizona, Florida, Hawaii, Maryland, New York, South Carolina, Virginia, and Wisconsin—collects detailed information for the program under review. In Maryland, state-level program reviews include comparisons of expenditures per student or

per credit hour with peer institutions in other states. Special data collection instruments are sent to the peer institutions, or data available from the American Association of Universities Data Exchange (AAUDE) are used.

South Carolina's program review is a component of its performance funding system and uses cost per student data. Arizona's program review is a part of the state's Strategic Planning and Budgeting Program. All state government "programs" are reviewed over a 10-year period. Reviews include 10 years' worth of data on program cost, as well as data from "peer" programs in other states. Reviews are completed by the governor's Office of Strategic Planning and Budgeting in cooperation with the Joint Legislative Budget Committee. The legislature determines from the review whether to continue authorization for the program and whether appropriations should be reduced, eliminated, or increased. In the first higher education "PARs" or "Program Authorization Reviews," the colleges of law were evaluated, and state funding was reduced.

Limitations in the Use of Cost Data

Although all states collect and use higher education cost data, there are definite limitations to the effective use of the data. Cost data are used primarily in the budgeting and appropriation process and in determining how much should be allocated to higher education. When determining how much or what an adequate appropriation should be, a fundamental issue is deciding which data to use to make that judgment.

This issue is relatively thorny because there is little good information on the relationship between dollars of input and quality of output in higher education. Because the information is limited, comparisons among institutions within a state or to peers are used. Within a state, policymakers want to know if one campus is funded equitably and adequately compared to others. Are funds distributed in such a way as to maximize the return on the state's investment in higher education?

Policymakers generally believe that colleges and universities are important to a state's economic development and success. Thus, a competitively funded college and university system is important to the state's economic future. Therefore, studies using cost data are critical in understanding how competitive a state's institutions are compared to institutions in other states.

Several issues arise in trying to determine whether institutions are funded equitably and adequately or how competitive higher education in a state is. These issues include:

- What dollars and what units of measure are to be used to compare funding?
- Which institutions are to be compared?
- Whose dollars are to be compared?

Each state answers these questions somewhat differently. No matter how the questions are answered, valid data that are reported consistently by each institution or entity are critical. And therein lies the rub.

Although every state collects cost data, no one state collects exactly the same kind of data or has the same definitions as any other. In addition, few institutions—and certainly no two state systems of higher education—are truly comparable. If two universities have different programs or different missions, they will require different resources to have "comparable costs." Thus, great care must be taken in collecting cost data and even in selecting peers for the purposes of comparison.

One important value of federal and regional databases is that they are a starting place in the data collection effort. The IPEDS Finance Survey provides cost data by budget program for each college and university in the nation. However, the IPEDS data are of limited usefulness because they are not given in sufficient detail and are not provided by academic discipline or non-academic department. So states collect their own data. To ensure comparability of

data, consideration should be given at least to the following factors:

- mix of academic programs;
- role of system staff in centralized admissions, auditing, legal, and other services;
- student financial aid programs available;
- existence of special units, such as cooperative extension or sea grant programs;
- definition of a FTE student;
- method of counting credit hours;
- inclusion of fringe benefit costs in institutional data (as opposed to in the budget of a centralized state retirement board);
- differences in reporting periods (such as academic year vs. fiscal year); and
- differences in who reports the data.

Most states do not complete detailed studies of the cost of instruction because they are difficult to complete, time consuming, and expensive. A detailed instructional cost study requires completion of faculty workload surveys by every faculty member in the system, a complication as faculty members are not known for their willingness to participate in the surveys. Design of the survey itself is fraught with difficulties, especially in the public environment, where the survey instrument is likely to be designed by a committee. Simply convening representatives from all institutions in the state to design the survey can be a logistical nightmare.

Once data on faculty workloads are collected, algorithms must be developed to allocate non-faculty costs to courses. Again, this is an activity typically assigned to a committee, and compromise is necessary to determine the algorithms to be used. Then, computer programs must be designed to process the data and derive the costs of instruction.

When cost data are collected for the purposes of performance measures or performance funding, hundreds of hours are spent designing data collection instruments, determining which data will be collected, and deciding how the data will be used. Because of the time commitments necessary for amassing a collection of detailed databases, states need to evaluate the costs and benefits of the activities before determining how much and how detailed cost information will be collected.

Public higher education institutions expended more than $120 billion in 1998-99. Such an enterprise surely needs valid and reliable cost data. But collection of the data is itself a large enterprise that requires planning and adequate definitions to ensure comparability and validity. ■

Notes

[1]For the purposes of this report, higher education costs are defined as expenditures made by colleges and universities to deliver programs and services in carrying out their missions. "Costs" do not refer to the amounts spent by students and their families to attend a college or university (i.e., tuition and fees, room, board, books).

[2]Bowen, Howard R. 1980. *The Costs of Higher Education*. San Francisco, CA: Jossey-Bass Publishers.

[3]National Center for Public Policy and Higher Education (NCPPHE). 1999. *Taking Responsibility: Leaders' Expectations of Higher Education*. San Jose, CA: NCPPHE.

[4]For example, one college may include expenditures for its radio station in the category "Public Service," while a second college may include these expenditures under "Auxiliary Enterprises" or "Academic Support."

[5]In actual practice, the amount of state appropriations to which each South Carolina institution is "entitled" is determined by a funding formula called the "Mission Resource Requirement (MRR)" model. Under MRR, the amount needed to fund each institution is determined by cost comparisons to peer institutions in SREB states and is calibrated to the amount of state funding available. Each institution then receives a percentage of the formula-determined amount, where the percentage is calculated by performance measures.

Glossary of Terms

Academic Support. A budget program that includes units that support the instruction, research, and public service programs. Budget units included in the academic support program under GAAP are libraries, museums, graduate colleges, media services, and academic computing services.

Agency Funds. Funds held by an institution acting as custodian or fiscal agent. Monies are deposited with the institution for safekeeping, to be used by the depositor at will. Typical examples of agency funds are deposits by student organizations. Agency funds are not a part of current funds.

Annuity and Life Income Funds. Funds received by an institution under deferred giving agreements. These contracts provide that an income be paid to the donor or designee for the lifetime of recipient(s) or for a fixed period of time. At the termination of the contracts, the funds become available for general university use or for a purpose specified by the donor. These funds may be held in the endowment fund group, but until the contract terminates, the funds are not classified as current funds.

Auxiliary Enterprises. A budget program that includes units that are fee driven or self-supporting. Budget units included in auxiliary enterprises under GAAP include residence halls, food service, and bookstores. Intercollegiate athletics may be included in this budget program.

Budget. A plan of financial information embodying an estimate of proposed expenditures for a given period of time and the proposed means of financing them.

Capital Budget. A plan of financial information related to capital improvements or expenditures and the means of financing those improvements or expenditures. Capital budgets are not part of current funds.

Capital Outlay. Expenditures for the upkeep, preservation, development, improvement, or acquisition of lands, buildings, or major fixed equipment.

Current Funds. Expendable economic resources available to carry out the primary missions of colleges and universities. Current funds may be restricted or unrestricted.

Current Restricted Funds. Resources available to an institution that have externally established limitations or stipulations on their use. Restrictions can be broad, such as scholarship aid, or quite specific, such as carrying out a research project.

Current Unrestricted Funds. Resources received that have no limitations or restrictions placed on their expenditure by external agencies or donors. Current unrestricted funds permit the widest range of flexibility in expenditure. Legislative appropriations and tuition and fee revenues typically are considered unrestricted funds.

Debt Service. Interest and principal repaid on debt instruments such as bonds, certificates of participation, and certain lease-purchases.

Educational and General Expenditures (E & G). Current fund expenditures for the principal mission of a college or university. E & G includes the budget programs instruction, research, public service, academic support, student services, institutional support, operation and maintenance of plant, scholarships and fellowships, and mandatory and non-mandatory transfers.

Employee Related Expenses (ERE). An employee's benefits package paid by the institution, including FICA; retirement or pension costs; worker's compensation; health, dental, and life insurance (only those costs paid by the institution); and uniforms for certain employees.

Endowment and Similar Funds. Funds contributed by a donor from which the earned income may be spent, but not the corpus of the donation. This fund group includes true endowment funds, term endowment funds, and funds functioning as endowment, which are called "quasi-endowment" funds. Term endowment funds are those whose nature changes after a specified period of time. Quasi-endowment funds are resources that are designated by management or the governing board as an endowment whose principal may be invested.

Equipment. Assets that are movable. Equipment may be capitalized (usually an item purchased for $1,000 or more) or non-capitalized (items that cost less than $1,000). Equipment that costs less than $200 usually is not considered an asset and is not considered in equipment inventories.

Full-Time Equivalent (FTE). A mathematical expression of full-time employees or students. Full-time equivalent employees work 2,080 hours during a fiscal year, including holidays. A full-time student is determined by dividing the number of credit hours in a semester or year by the typical credit hour load. For example, a full-time equivalent undergraduate student typically is calculated to be equal to 15 semester hours for one semester, or 30 semester hours over the academic year. A full-time equivalent master's student is equivalent to 12 hours over one semester or 24 hours over the academic year.

Fund. An independent fiscal and accounting entity with a self-balancing set of accounts that records all resources together with all related liabilities, obligations, reserves, and equities. Funds are segregated for the purpose of carrying out specific activities in accordance with limitations, restrictions, laws, or regulations.

GAAP. Generally Accepted Accounting Principles. The basic accounting principles that govern financial reporting for organizations. Currently, there are separate sets of GAAP for private colleges and universities and for public.

Headcount. A simple count of the number of students. One human being equals one headcount.

Institutional Support. A budget program that includes activities that support all other institutional programs. Institutional support includes expenditures for accounting, purchasing, personnel, budget, telecommunications, alumni services, the president's office, offices of vice presidents, and any other services that operate for the institution as a whole.

Instruction. A budget program that includes teaching, departmental research (research directed toward the transfer of knowledge in a classroom setting), and faculty public service. This budget program includes the activities of academic departments and schools.

Loan Funds. Resources provided by various sources that may be lent to students, faculty, or staff. Loan funds are not part of current funds.

Lump Sum Appropriation. An appropriation that does not specify line item amounts or expenditures for specific activities or for particular objects of expenditure.

Mandatory Transfers. A budget program that includes movement of resources from one fund group to another due to binding legal agreements or agreements with external agencies. Transfers from current funds to plant funds for bond debt service payments are considered mandatory transfers.

Mission Statement. A short and comprehensive statement of purpose. The mission identifies what an institution, program, or department does and for whom.

Non-mandatory Transfers. A budget program that includes the transfer of resources from one fund group to another that is made at the discretion of the governing board. An example of a non-mandatory transfer is the use of tuition revenues for plant fund projects other than debt service.

Operating Budget. A plan of all expenditures to operate an institution for a specified period of time, excluding capital expenditures.

Operation and Maintenance of Physical Plant. A budget program that includes expenditures related to the operation of campus facilities. Plant expenditures do not include debt service payments or purchases of capital equipment, land, buildings, and improvements.

Other Operating Expenses. Operating expenses not included with personal services, travel, professional services, food, or equipment. Other operating expenses may include supplies and communications.

Personal Services. Items of expenditure for salaries and wages paid to employees and board members and for overtime.

Plant Funds. Resources for renewal and replacement of institutional properties, debt service, and the cost of long-lived assets (other than endowment and similar funds). Plant funds include the value of land and buildings.

Program. Functions and activities within an institution that are preplanned to fulfill a definite objective. A program is a combination of inputs or resources producing outputs or services designed to achieve desired outcomes or objectives. Examples are the instruction and student services programs.

Public Service. A budget program that contains expenditures related to university activities that serve the general public. Program activities include university television and radio stations.

Restricted Funds. Revenues whose use is limited by the donor or other external agencies; grants to carry out research projects are considered restricted funds.

Revenues. Additions to assets that do not increase any liability, do not represent the recovery of an expenditure, or do not represent the cancellation of liabilities without a corresponding increase in other liabilities or decrease in assets.

Scholarships and Fellowships. A budget program that includes student financial aid not requiring repayment or direct service. Included are Pell Grants and National Merit Scholarships, but all student loans and work-study funds are excluded.

Strategic Plan. An organization's plan that extends for a period of at least three years and contains a mission statement, goals, objectives, strategies for achieving the goals and objectives, and related performance measures.

Student Credit Hours. The number of classroom hours or credits in which students enroll for a semester.

Student Services. A budget program that includes activities directed toward serving students outside of the classroom. These activities include admissions, registration, student health services, counseling, financial aid, and placement.

Transfers. Movement of resources from one fund group to another. Transfers may be mandatory or non-mandatory.

Tuition. The amount paid by students for instruction. Tuition may be charged per credit hour or may be a flat amount for a full-time student. Usually, full-time tuition is charged for nine or more semester hours taken in a semester.

Tuition and Mandatory Fees. The amount paid by students for instruction, plus other charges assessed against the typical student. Mandatory fees may include items such as a technology charge, student union fee, student activities fees, and building construction fees.

Unrestricted Funds. Revenues or assets that may be used for the benefit of the institution without restriction or limitation by the donor or other external agency.

THE INSTITUTE FOR HIGHER EDUCATION POLICY SURVEY
State Use of Higher Education Cost Data

STATE:_____ RESPONDENT:_____
E-MAIL:_____ PHONE:_____

For this survey, "costs" are defined as expenditures for higher education, including institutional expenditures, expenditures for compensation and benefits that may be paid by other state agencies, governing or coordinating board expenditures, and expenditures for student financial aid.

1. **Does your state collect higher education cost data?**
   ❑ No (Skip to Question 12.) ❑ Yes

2. **Who collects the data? (Check all that apply.)**
   ❑ SHEEO Agency ❑ Other statewide board ❑ Legislature ❑ Governor's office
   ❑ System governing board ❑ Other _____

3. **Who provides the data? (Check all that apply.)**
   ❑ SHEEO Agency ❑ Other statewide board ❑ Institution ❑ System governing board
   ❑ Other _____

4. **How often are data collected?**
   ❑ Annually ❑ Biennially ❑ Each semester ❑ When requested ❑ Other_____

5. **Which data are collected? For example, costs per credit hour; cost per square foot for building maintenance or utilities; cost per student counseled; cost per student recruited; cost per transaction; etc. Please list, or provide a copy of data reports used by your state.**

   _____
   _____
   _____

6. **At what level of detail are the data collected? For example, by discipline, by level, categorized by type of expenditure, by type of building, by type of room.**

   _____
   _____
   _____

7. **How are the data used? (Check all that apply.)**
   ❑ Funding formula or guideline ❑ Faculty salary setting ❑ Productivity or workload measures
   ❑ Appropriation
   ❑ Academic program review ❑ Peer analysis ❑ State budget request
   ❑ Other _____

8. **Who uses the data? (Check all that apply.)**
❑ SHEEO agency ❑ Other statewide board ❑ Legislature ❑ Governor's office
❑ System governing board ❑ Other _____

9. **How is the accuracy of the data verified?**

_____

_____

_____

10. **How are the data collected? (Check all that apply.)**
❑ Special cost study ❑ Budget documents ❑ Annual or biennial cost study ❑ Regional cost study (e.g., SREB Data Exchange) ❑ Strategic planning materials ❑ Other_____

11. **Are published cost data**
❑ direct costs only or ❑ full costs?
If full cost, what is included as indirect costs? _____

12. **Do you expect a change in data collection efforts?**
❑ No ❑ Yes.
If so, please explain._____

_____

13. **Has there been any change in data collection efforts in the last year?**
❑ No ❑ Yes. If so, please explain. _____

14. **Do you consider data collected useful in the policy making process?**
❑ No ❑ Yes. If so, please explain. _____

_____

15. **Are there other issues related to statewide collection of cost data in your state?**

_____

_____

THE DELAWARE STUDY OF INSTRUCTIONAL COSTS AND PRODUCTIVITY
A Consortial Approach to Assessing Instructional Expenditures

Michael F. Middaugh

Introduction

The early 1990s were an especially difficult time for American higher education. Colleges and universities were faced with resource reallocation decisions in response to an economic recession that had gripped most areas of the country. In determining how faculty and financial resources should be allocated—or reallocated—the decision-making context was further exacerbated by external criticism of the academic enterprise. That criticism is perhaps best summarized in the 1990 *Change* Magazine article by Robert Zemsky of the University of Pennsylvania and William Massy of Stanford University, describing what they refer to as the "academic ratchet":

> A term to describe the steady, irreversible shift of faculty allegiance away from the goals of a given institution, toward those of an academic specialty. The ratchet denotes the advance of an independent, entrepreneurial spirit among faculty nationwide, leading to increased emphasis on research and publication, and on teaching one's specialty in favor of general introduction courses, often at the expense of coherence in an academic curriculum. Institutions seeking to increase their own prestige may contribute to the ratchet by reducing faculty teaching and advising responsibilities across the board, thus enabling faculty to pursue their individual research and publication with fewer distractions. The academic ratchet raises an institution's costs and results in undergraduates paying more to attend institutions in which they receive less than in previous decades.

For years, the University of Delaware's Office of Institutional Research and Planning had been collecting detailed data on teaching workloads, instructional costs, and externally funded scholarly activity. Metrics such as the proportion of undergraduate courses taught by tenured or tenure-track faculty, full-time equivalent (FTE) students taught per FTE faculty, instructional expenditures per student credit hour, and externally funded research per FTE faculty, among others, were readily accessible. The measures largely enabled the university to answer the question, "Who is teaching what to whom, and at what cost?" and positioned the institution to respond to critics such as Zemsky and Massy. Senior administrators at the university used these data to compare instructional activity between and among departments within related disciplines, e.g., humanities, physical sciences, social sciences, etc., and to frame questions with regard to instructional costs and productivity over time. These questions formed the basis for resource allocation and reallocation decisions.

When current University of Delaware President David P. Roselle arrived in 1990, he indicated that as useful as these interdepartmental comparisons were, the data would be even more valuable if comparisons could be made between and among disciplines at colleges and universities across the country. The Office of Institutional Research and Planning was charged with the responsibility for collecting interinstitutional cost and productivity data at the academic discipline level.

Initial data collection was undertaken in 1992, and in retrospect, it was fairly primitive. Data were collected from 14 research universities, 15 doctoral universities, and 48 comprehensive colleges and universities. The data were analyzed to test the assumption that comprehensive colleges have higher student credit hour production and lower costs than doctoral universities, which would have higher credit hour production and lower costs than research universities. The data revealed an altogether different pattern, clearly the result of sample dependency. The results were presented at the 1994 national meetings of the Association for Institutional Research (AIR) and the Society for College and University Planning (SCUP). The limitations in the data were fully described (Middaugh, 1994).

What was remarkable about reaction to the findings was not concern over the stated results, but rather enthusiasm that institutions were prepared to share detailed information on teaching loads, instructional costs, and externally funded scholarly activity. The Office of Institutional Research and Planning at the University of Delaware was encouraged to replicate the study, refining the methodology where appropriate to correct for issues of sample dependency and other potential sources of error.

While the University of Delaware absorbed the full cost of the 1992 study, external funding for subsequent iterations was essential. In 1995, the Office of Institutional Research and Planning received a Cooperative Research Grant from TIAA-CREF to underwrite administrative costs associated with a second data administration. These funds were used, in part, to disseminate information to expand the study sample. Equally important, the funds were used to convene an advisory committee to examine the 1992 data collection instruments, methodology, and calculation conventions and to make appropriate recommendations for modifications and enhancements.

The advisory committee included individuals with national reputations for expertise in collecting data on faculty workloads and on budgetary issues associated with collecting data on instructional, research, and public service expenditures. The advisory committee has a rotating membership and continues to meet to this date. To ensure the ongoing relevance and viability of the project, several members serve on a continuing appointment. Dr. Paul Brinkman, Director of Institutional Planning at the University of Utah, and author of several books and articles on costing in higher education, has been a continuing member, as has Robert Kuhn, Vice Chancellor for Budget Planning and Analysis at Louisiana State University. Deborah Teeter, Director of Institutional Research and Planning at the University of Kansas and a nationally recognized expert of faculty activity analysis, also has served on the Advisory Committee since its inception.

The 1995-96 data collection embraced 32 research universities, 43 doctorate-granting universities, and 85 comprehensive and baccalaureate colleges and universities. The results were not only sensible, reflecting a much broader sample, but they also demonstrated that, nationally, faculty teach far more than was the popular perception.

The 1995 TIAA-CREF grant provided the substantive basis for applying for a much larger grant from the Fund for the Improvement of Postsecondary Education (FIPSE) that was awarded to the Office of Institutional Research and Planning in 1996, allocating in excess of $100,000 to fund the project over a three-year period. As a result of this infusion of resources, more than 250 colleges and universities have participated in the Delaware study, and the 1998-99 data collection moved the project to a state of self-sufficiency. The data sharing project has emerged as the national tool of choice for collecting consistent and reliable information on teaching loads, instructional costs, and productivity at the academic discipline level.

Essential Elements of the Delaware Study

As noted earlier, the single greatest challenge confronting the Delaware study following the initial 1992 data collection was the development of a methodology, data definitions, calculation, and reporting conventions that

would yield consistent and reliable data that would have significant utility to participating institutions. The TIAA-CREF and FIPSE grants allowed the creation of an advisory committee, which confronted this challenge head-on.

The advisory committee developed a reporting convention consistent with the best practices in the areas of instructional workload and financial analysis. It eliminated the ambiguity from the 1992 data collection and strengthened and expanded the scope of data collection to the point where the Delaware study is no longer experimental. It is an established, state-of-the-art data collection consortium that will continue to evolve over time to meet the changing needs of academic and financial planners at colleges and universities.

The Delaware Study Data Collection form can be found at the end of this paper. It is useful to examine the data elements being collected before moving into a discussion of how they are analyzed, reported, and used. The Delaware study collects data by academic discipline, as defined by the National Center for Education Statistics' "Classification of Instructional Programs" (CIP) taxonomy. Colleges and universities are required to submit data at the four-digit CIP code level, e.g., 27.01 is mathematics, 38.01 is philosophy, 40.08 is physics, 45.11 is sociology, and so on. Every course at every college and university in the country is assigned a CIP code. Consequently, it is possible to track each course to a discipline within the CIP taxonomy. Thus, in looking at departments and programs across institutions, it is possible to have confidence in the comparability of those units.

Data on the highest degree offered also are collected. This was one of the initial advisory committee modifications to the data collection. The 1992 effort did not collect these data, to the detriment of the subsequent analysis. Once graduate study is entered into the equation, both teaching loads and instructional expenditures are profoundly affected. Because of this modification, the Delaware study is now able to report national benchmarks in two important and different arrays: by Carnegie Classification and by highest degree offered. Data also are collected on academic calendar type, as the University of Delaware's Office of Institutional Research at the University of Delaware has developed an algorithm to make data from semester and quarter calendar institutions comparable.

The crux of teaching load data are collected in Part A of the Data Collection Form. Data reflect the fall semester or quarter in the academic year immediately preceding the data collection, thereby ensuring timely and "fresh" data. As the matrix in Part A makes clear, teaching activity is measured in student credit hours and organized class sections taught. The teaching activity is measured for four discrete categories of faculty. Of course, the primary concern nationally is whether—or how much—tenured and tenure-track faculty teach; data on such faculty are to be entered in the first row of the matrix. The remaining faculty categories include "other regular faculty," i.e., individuals who are on recurring contracts with the institution but who will never be eligible for tenure. There is a growing debate among faculty unions that college administrations are attempting to cut instructional costs through increased use of lower-salaried, non-tenurable faculty. The extent to which this assertion is accurate can be assessed within the metrics of the Delaware study. The matrix also collects teaching information for "supplemental faculty," i.e., non-recurring faculty, such as adjuncts, administrators who teach, etc., and for graduate teaching assistants.

The decision to measure teaching activity in student credit hours taught was deliberate. After extended discussion about the prospect of using contact hours, the advisory committee determined that the contact hour unit lacked consistency and stability across disciplines on a single campus, never mind across institutional boundaries. The student credit hour, on the other hand, is a derivative of the Carnegie course unit and has consistency and integrity at institutions throughout the country. Thus, measures such as "number of student credit hours taught" or "expenditures per student credit hour" have common definitions and meanings across campuses.

The advisory committee was fully cognizant, however, that all instructional activity is not measured in student credit hours. Consequently, data are collected on "organized class sections." In a great many instances, the organized class section reported is the lecture-based section that carries student credit hour value. But the Delaware study also collects data on other, zero-credit organized class sections, typically laboratory, recitation, and discussion sections associated with the credit-bearing lecture portion of the course. These zero-credit sections meet at regularly scheduled times and consume instructional resources just like the lecture portion of the course but would be totally obscured and lost in the analysis if the data focused solely on student credit hours. The volume of teaching activity would be significantly understated, and the cost data associated with each course would be distorted.

Student credit hour and organized class section data are collected by level of instruction, i.e., lower division (typically freshman- and sophomore-level courses), upper division (typically junior- and senior-level courses), and graduate level. The data are further arrayed by organized class and individualized instruction delivery methods. This latter distinction enables the Delaware study to measure instructional activity such as master's thesis and doctoral dissertation supervision. Representative benchmarks on teaching loads, taken from the Delaware study, follow the example of the Data Collection Form at the end of the paper.

Part B of the Data Collection Form collects information on full academic year and fiscal year teaching productivity and instruction, research, and public service expenditures. Data on fiscal year instructional expenditures are broken out into salaries, benefits, and other-than-personnel expenses (e.g., travel, supplies, non-capital equipment, etc.). This enables determination of the personnel intensity of instructional expenditures, comparison of benefits packages as components of instructional costs, and so on. Total fiscal year expenditure data for research and public service activity also are collected. Representative benchmarks on instructional costs and productivity, as well as externally funded scholarly activity, also are included.

It is important to note that the advisory committee initially determined and has repeatedly reaffirmed its decision to collect data on *direct expenditures* for instruction, research, and service. The definitions of what constitutes a direct expenditure is clear and precise, rooted in policy statements from the National Association for College and University Business Officers (NACUBO). Indirect costs are far murkier. Indirect cost rates vary by institution, and even by discipline within institutions. Consequently, in talking about instructional costs and productivity, the advisory committee opted to use metrics with consistency and integrity across institutions. By definition, the Delaware study is not a full cost model. It is, however, a consistent and reliable tool for assessing the direct costs associated with teaching, research, and service, as well as their relative relationships with overall faculty activity.

Using Data from the Delaware Study

The Delaware study is intended primarily to be a tool of inquiry for framing questions as to why teaching loads, instructional costs, and faculty productivity in a given academic department or program at a single institution are similar to or different from national benchmarks for that department or program. While the Delaware study was designed primarily for institutional use, the national database that underpins the benchmarks is a rich source of information about how much faculty actually teach and the relative costs of instruction.

The University of Delaware, for example, uses study data as one component in an overall academic program review process. The university provost focuses much of the Delaware study data analysis on the activities of tenured and tenure-track faculty. He does this because this category of faculty is a "fixed cost," that is, they are permanently employed until they retire or resign. Consequently, the provost is interested in the return on

investment. Figure One is a sample of a single page "department profile" provided to the provost. The chart captures two years of Delaware study data, displaying the university's measures as a percentage of the national benchmark in each year for the following categories:

- undergraduate student credit hours taught per full-time equivalent (FTE) tenured and tenure-track faculty;
- total student credit hours taught per FTE tenured and tenure-track faculty;
- class sections taught per FTE tenured and tenure-track faculty;
- total student credit hours taught per FTE faculty (all categories);
- direct instructional expense per student credit hour taught; and
- external research/service funding per FTE tenured and tenure-track faculty.

This snapshot quickly tells the provost that, for the two iterations of the Delaware study under examination, the department in question has tenured and tenure-track faculty who teach in excess of the national benchmarks, as measured in undergraduate student credit hours, total student credit hours, and organized class sections taught. Direct expense per student credit hour taught is higher than the national benchmark. However, this may be acceptable for a couple of reasons. Tenured and tenure-track faculty in this department teach more than the national average for this particular department. The national benchmark is a mean score from data reported (with appropriate outliers excluded) and has *not* been adjusted for cost of living considerations. The University of Delaware is located in the Washington D.C. to Boston corridor, where the cost of living is significantly higher than in the rest of the nation. Because faculty salaries—especially those of tenured and tenure-track faculty—account for between 85 and 90 percent of direct instructional expenses, on average, cost of living is actually a very real consideration. Finally, it is clear from the charts that this department conducts significant external research—further context for considering the acceptability of instructional workload and cost indicators.

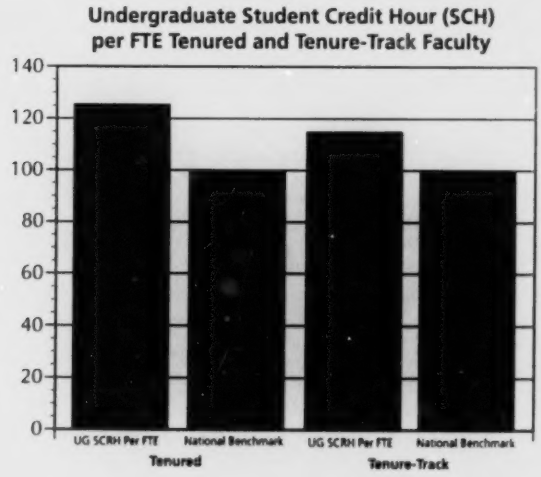
Although the University of Delaware does not make cost of living adjustments in its use of the data, other institutions participating in the study do. This is one of the study's attractive features: each institution can adjust the data to meet their own unique needs. For example, the University of Oregon uses the national benchmark data to create a mirror image of itself in terms of constituent departments and programs and, on the basis of trend data, projects costs and teaching loads into the future. The Delaware study is of value to state systems as well. Major higher education systems, including the California State University, the State University of New York, the University of North Carolina, and the Louisiana Board of Higher Education have or are participating in the study. Indeed, the Delaware study project director devoted an entire chapter in a recently published volume, *The Multicampus System*, to a discussion of productivity in systems (Middaugh, 1999a).

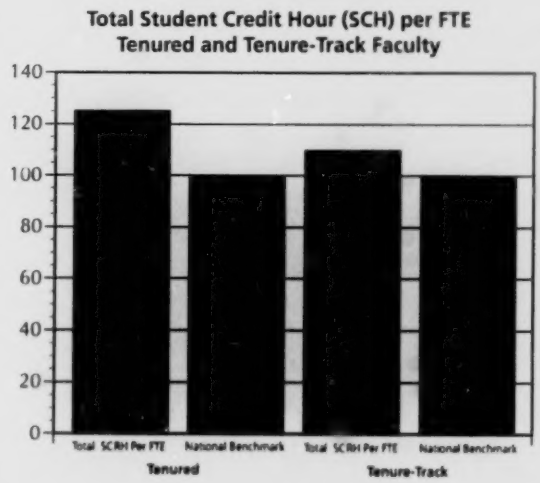
At the institutional level, study participants are strongly urged *not* to use the national benchmarks in any given year to reward or penalize departments or programs. The study is intended to be a tool of inquiry for framing questions as to where and why, over time, a given department or program is positioned relative to national benchmarks. The Delaware study *is purely a quantitative analysis and in no way addresses the qualitative dimension of an academic department or program*.

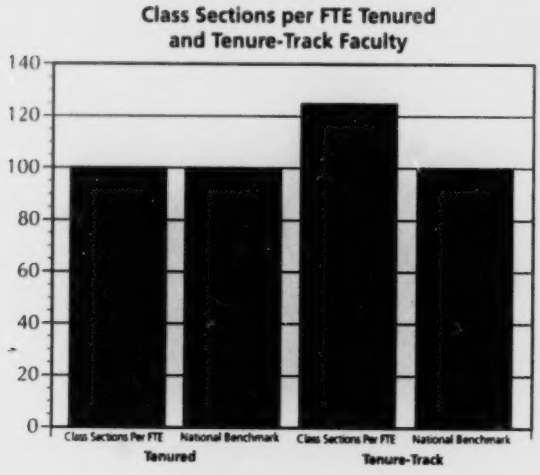
Certain academic departments—including some at the University of Delaware—have higher costs and lower teaching loads than national benchmarks, and for purely qualitative reasons, they wouldn't have it any other way. At the University of Delaware, departments are challenged annually to provide the measurable qualitative dimensions of their operations that provide the context within which Delaware study data should be considered. The Delaware study also is receiving national attention as a tool for better understanding the extent to which

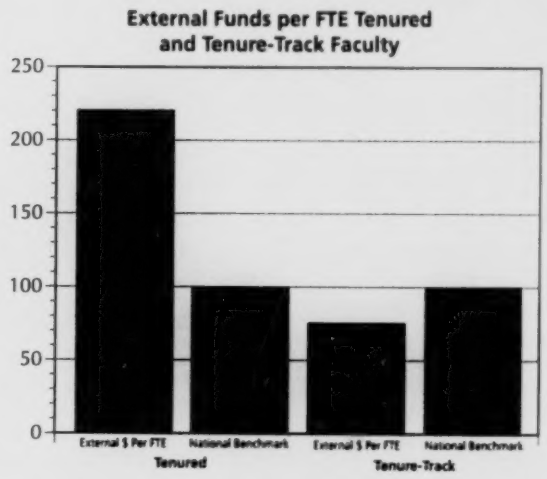
FIGURE ONE: DEPARTMENT X

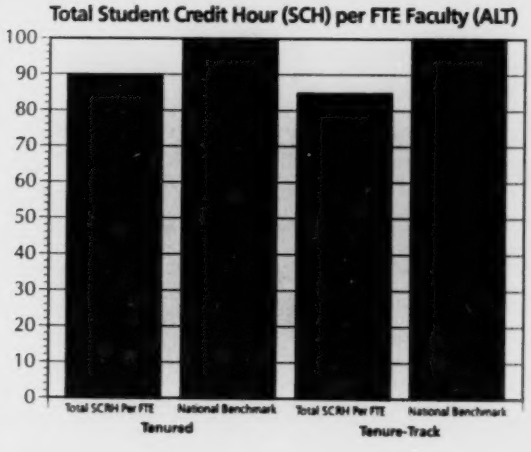
University of Delaware Data as Percentages of National Benchmarks

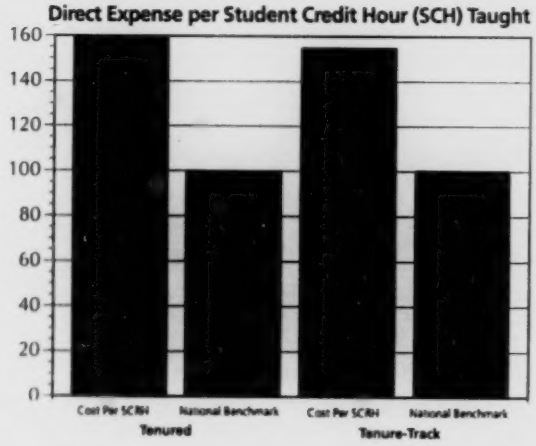












BEST COPY AVAILABLE

faculty are engaged with students—particularly undergraduates. This is especially important as colleges and universities address external criticisms. Equally important, the data enable colleges and universities to provide quantitative information to skeptical legislators and parents who are called upon to fund those institutions.

In the Winter 1998-99 issue of *Planning for Higher Education*, the journal of the Society for College and University Planning, three years of Delaware study data were examined (Middaugh, 1999b). The article demonstrated remarkable stability and consistency in the data, as they reflected instructional activity across 25 academic disciplines typically found at most colleges and universities. The data demonstrated that, on average, across those disciplines, over half of the lower-division student credit hours at research universities are taught by tenured and tenure-track faculty; in fact, two out of every three undergraduate student credit hours are taught by members of this faculty category. The proportions were progressively higher as the analysis moved from research universities, to doctoral universities, to comprehensive institutions, to baccalaureate colleges.

This is not a trivial finding. The currency used to determine full-time/part-time student status is the number of student credit hours taken in a given term. Progress toward a degree is measured in terms of student credit hours successfully completed. That currency—the student credit hour—is being generated in far larger proportions than popularly perceived by the very faculty group in which colleges and universities have invested most, i.e., tenured and tenure-track faculty.

At the same time, the Delaware study data on organized class sections taught reveal lower-division and undergraduate proportions for tenured and tenure-track faculty that are lower than those for student credit hour generation. This confirms what is common knowledge: that graduate teaching assistants frequently meet the zero-credit laboratory, recitation, and discussion sections of courses, while tenured or tenure-track faculty members teach the lecture sections. No body of research suggests that this practice is pedagogically unsound. In fact, Delaware study data suggest that it enables institutions to realize their missions. Faculty at research universities bring in three times more external funding than their counterparts at doctoral universities, and 25 times more than those at comprehensive institutions. When the economic impact of research and public service activity at a major university is examined, the job and tax revenue generation are substantial, and underscore the necessity of this type of institutional mission. On the other hand, faculty at comprehensive institutions where teaching is the primary mission do teach significantly heavier loads than doctoral and research university faculty, and they do so at lower costs.

Summary

The Delaware Study of Instructional Costs and Productivity has matured over the past decade into a major data-sharing consortium that is the preeminent national source of information on teaching loads, instructional costs, and overall faculty productivity. The prime mover in this maturation process has been the Delaware Study Advisory Committee, which has systematically refined and enhanced the data collection instruments, methodology, definitions, and analytical conventions. The result is a sophisticated and comprehensive database that is used by nearly 300 institutions across the country.

In looking toward the future, the Delaware study has a number of planning objectives. Naturally, one goal is an increased institutional participation rate. The advisory committee has targeted two constituent groups for increased participation: private and independent colleges and universities and historically black colleges and universities. Private and independent institutions currently account for only about one-fourth of the participant pool. These institutions have less of a culture of data sharing than state-assisted and state-related institutions. Private institutions also have expressed concern that they will be disadvantaged should the data

indicate that their costs are higher than public institutions'. While these concerns are real, they are not valid. Cost per student credit hour taught is not a function of whether the revenue source for dollars spent is tuition or state appropriation. Rather, it is a function of what goes into instruction, including variables such as class sizes, student/faculty ratios, and other issues that private institutions can use to their advantage in discussing costs with parents and benefactors.

Historically black institutions have participated minimally in the Delaware study. The benefits of management data generated by the Delaware study are self-evident both with regard to enhancing efficiency and cost effectiveness and in making a case for more equitable resources, using comparative data as the foundation.

In expanding the participant pool, the greatest obstacle is not institutional concern about possible misuse of the data. That issue is addressed fully by two facts: first, the data reported by a given institution are confidential, and second, the data set fully masks institutional identities. Moreover, only study participants can access the study data; hence, there is a commonality of interest in using the data responsibly.

The challenge to expanded participation pertains primarily to data sophistication. The data collection process at the institutional level is not trivial. Many smaller schools lack the computing hardware, software, and sometimes even the personnel needed to disaggregate teaching loads and instructional costs to the CIP code level of analysis. The Delaware Study Advisory Committee and others are constantly exploring ways to simplify the data collection process and increase participation while ensuring that the quality and amount of information from the study are not compromised in any way.

In terms of additional data elements, the Delaware Study Advisory Committee is carefully exploring strategies for measuring and quantifying non-externally funded faculty activity in areas other than instruction. Certainly, teaching loads and instructional costs are affected by the extent to which faculty devote time to such out-of-classroom activities as academic advising, institutional committee work, curriculum development, etc. Moreover, for faculty in areas such as the fine arts and humanities, scholarly activity is a prerequisite to promotion and tenure. But because these disciplines do not have access to the volume of external research available to the hard sciences and engineering, much of this activity is not captured in the Delaware study. The advisory committee is fully cognizant of these issues and is developing appropriate metrics for providing fuller contextual information for examining instructional costs.

The demand for consistent and reliable information on productivity and accountability at higher education institutions is not a passing fad. Such information is long overdue, and the Delaware Study of Instructional Costs and Productivity will continue to play a key role in describing the effectiveness and efficiency of institutional stewardship of financial and human resources. We continue to publicize the results of the Delaware study at regional and national meetings of the Association for Institutional Research and the Society for College and University Planning, through articles in respected national journals such as *Planning for Higher Education*, and through forums such as that sponsored by The Institute for Higher Education Policy. The Delaware study is now a permanent fixture in the repertoire of data collection and analytical tools. As it becomes more visible and as interest in participation continues to increase, it will meet the needs of growing segment of the higher education community. ■

References

Middaugh, M.F. May 1994. "Interinstitutional Comparison of Instructional Costs and Productivity, by Academic Discipline: A National Study." A paper presented at the Annual Forum of the Association for Institutional Research.

_____. May 1996. "Instructional Costs and Productivity, by Academic Discipline: A National Study Revisited." A paper presented at the Annual Forum of the Association for Institutional Research, Albuquerque, NM.

____.1999a. "Productivity in Systems." In G. Gaither, ed. *The Multicampus System: Perspectives on Practice and Prospects*. Sterling, VA: Stylus Press, pp. 128-141.

____.1999b. "How Much Do Faculty Really Teach?" *Planning for Higher Education*, 27(2): 1-11.

Zemsky, Robert and William Massy. 1990. "Cost Containment: Committing to a New Economic Reality." *Change*, 22(6): 16-22.

APPENDIX A

1998 Delaware Study of Instructional Costs and Productivity

Institution: _____

Department/Discipline: _____

Associated CIP Identifier: _____

Please indicate the average number of degrees awarded in this discipline at each degree level over the three year period from 1994–95 through 1996–97.

Bachelor's: _____
Master's: _____
Doctorate: _____
Professional: _____

Place an 'X' in the box below if this discipline is non-degree granting. ☐

Place an 'X' in the box below that describes your academic calendar:

☐ Semester
☐ Quarter

A. Instructional Courseload: Fall Semester, 1997

Please complete the following matrix, displaying student credit hours and organized class sections taught, by type of faculty, and by level of instruction. Be sure to consult definitions before proceeding. Do not input data in shaded cells except for those mentioned in the important note below that pertains to (G) and (J).

FACULTY	FTE Faculty		
Classification	**(A)Total**	**(B) Separately Budgeted**	**(C) Instructional**
Regular Faculty: • Tenured/Tenure Eligible			
• Other Regular Faculty			
Supplemental Faculty		NA	
Teaching Assistants: • Credit Bearing Courses		NA	
• Non-Credit Bearing Activity		NA	
TOTAL			

STUDENT CREDIT HOURS								
Classification	**(D) Lower Div. OC***	**(E) Upper Div. OC***	**(F) Undergrad Indiv. Instruct.**	**(G) Total Undergrad SCH**	**(H) Grad OC***	**(I) Grad. Indiv. Instruct.**	**(J) Total Grad. School**	**(K) Total Student Credit Hrs.**
Regular Faculty: • Tenured/Tenure Eligible								
• Other Regular Faculty								
Supplemental Faculty								
Teaching Assistants: • Credit Bearing Courses								
• Non-Credit Bearing Activity	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL								

☐ In the box to the left, indicate the number of Graduate Individualized Instruction Student Credit Hours from the Total that are devoted to supervised doctoral dissertation.

BEST COPY AVAILABLE

ORGANIZED CLASS SECTIONS		Other Section Types (Lecture, Seminar, Etc.)			
Classification	**(L) Lab/Dsc/Rec Sections**	**(M) Lower Div.**	**(N) Upper Div.**	**(O) Graduate**	**(P) Total**
Regular Faculty: • Tenured/Tenure Eligible:					
• Other Regular Faculty:					
Supplemental Faculty					
Teaching Assistants • Credit Bearing Courses					
• Non-Credit Bearing Activity					
TOTAL					

B. Cost Data: Academic and Fiscal Year 1997-98

1. In the boxes below, enter the total number of student credit hours that were generated during Academic Year 1997-98 during terms that were supported by the department's instructional budget. (NOTE: Semester calendar institutions will typically report fall and spring student credit hours; quarter calendar institutions will usually report fall, winter, and spring, student credit hours.)

   ☐ A. Undergraduate
   ☐ B. Graduate

2. In the boxes below, enter total ***direct*** expenditures for instruction in FY 1997-98.

   ☐ A. Salaries

   ☐ B. Benefits

   ☐ C. Other than personnel expenditures

   ☐ D. Total

   Are the benefits included in the number reported for salaries? ❒ Yes ❒ No
   If the dollar value is not available, what percent of salary do benefits constitute at your institution?

   ☐

3. In the box below, enter total ***direct*** expenditures for separately budgeted research activity in FY 1997–98.

   ☐

4. In the box below, enter total ***direct*** expenditures for separately budgeted public service activity in FY 1997–98.

   ☐

Delaware Study National Benchmarks—Norms by Carnegie Classification

TABLE ONE

Normative Number of Student Credit Hours, Organized Class Sections, and FTE Students Taught per Term per FTE Instructional Faculty for Tenured/Tenure-Track Faculty (Fall 1997)

CIP	Discipline/Carnegie Classification	N°	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
9.00	COMMUNICATIONS									
	Research	73	204	1.8	25	0.6	227	2.4	2.6	16.2
	Doctoral	25	207	2.1	24	0.7	225	2.7	2.8	16.2
	Comprehensive	59	211	3.3	17	0.4	217	3.6	3.7	15.0
	Baccalaureate	8	165	3.4	na	na	165	3.4	3.4	11.0
9.01	Communications, General									
	Research	27	201	1.7	25	0.6	224	2.2	2.4	16.0
	Doctoral	13	227	2.6	23	0.7	245	2.9	3.0	17.1
	Comprehensive	40	233	3.4	19	0.4	244	3.6	3.8	16.7
	Baccalaureate	5	166	3.3	na	na	166	3.3	4.1	11.1
9.04	Journalism and Mass Communications									
	Research	32	189	1.9	18	0.4	212	2.4	2.8	14.9
	Doctoral	7	184	2.0	25	0.6	202	2.5	2.7	14.3
	Comprehensive	12	169	3.3	11	0.8	172	3.5	3.9	11.6
9.07	Radio and Television Broadcasting									
	Research	7	233	1.6	38	1.0	271	2.6	3.0	19.8
	Comprehensive	5	211	3.2	10	0.2	214	3.3	3.4	14.5
11.00	COMPUTER AND INFORMATION SCIENCES									
	Research	43	159	1.1	54	0.8	204	1.8	2.1	16.3
	Doctoral	22	143	1.6	44	0.8	189	2.3	2.4	14.6
	Comprehensive	40	209	3.2	26	0.7	227	3.5	3.8	15.9
	Baccalaureate	8	228	3.7	na	na	228	3.7	3.9	15.2
11.01	Computer and Information Sciences, General									
	Research	36	164	1.1	54	0.7	206	1.8	2.0	16.5
	Doctoral	18	136	1.4	45	0.7	175	2.1	2.2	13.8
	Comprehensive	26	212	3.2	29	0.7	230	3.5	3.8	16.1
	Baccalaureate	7	244	3.8	na	na	244	3.8	3.9	16.3
11.07	Computer Science									
	Comprehensive	13	193	3.5	19	0.8	211	3.7	3.9	15.7
13.00	EDUCATION									
	Research	156	79	0.9	73	1.4	151	2.3	2.5	13.4
	Doctoral	71	93	1.2	69	1.6	157	2.9	3.1	14.0
	Comprehensive	145	132	2.1	54	1.2	182	3.3	3.6	14.7
	Baccalaureate	18	203	3.4	12	0.6	214	3.9	4.1	14.8

N° = number of institutions responding

BEST COPY AVAILABLE

Delaware Study National Benchmarks—Norms by Carnegie Classification

TABLE TWO

Normative Number of Student Credit Hours, Organized Class Sections, and FTE Students Taught per Term per FTE Instructional Faculty for Other Regular Faculty (Fall 1997)

CIP	Discipline/Carnegie Classification	N*	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
1.00	AGRICULTURAL BUSINESS AND PRODUCTION									
	Research	34	288	2.2	1	0.0	291	2.2	5.0	19.6
1.01	Agricultural Business and Management									
	Research	21	505	2.0	0	0.0	506	2.0	3.7	33.8
2.00	AGRICULTURAL SCIENCES									
	Research	69	164	1.8	2	0.0	169	2.0	3.5	11.5
	Comprehensive	9	113	3.2	7	0.6	116	3.6	5.2	7.9
2.01	Agriculture/Agricultural Sciences									
	Comprehensive	7	112	2.8	10	0.4	116	3.0	3.9	7.9
2.02	Animal Sciences									
	Research	24	160	1.9	1	0.1	165	2.2	3.7	11.2
2.03	Food Sciences and Technology									
	Research	12	179	2.3	4	0.1	183	2.3	3.3	12.3
2.04	Plant Sciences									
	Research	24	151	1.6	3	0.0	157	1.7	3.4	10.7
2.05	Soil Sciences									
	Research	6	na	na	na	na	na	na	na	na
3.00	CONSERVATION & RENEWABLE NATURAL RESOURCES									
	Research	40	195	1.7	10	0.2	213	2.0	2.2	15.0
	Doctoral	9	332	5.9	17	0.0	342	5.9	6.1	23.3
	Comprehensive	5	1026	7.6	na	na	1026	7.6	7.6	68.4
3.01	Natural Resources Conservation									
	Research	9	444	2.5	4	0.9	448	3.5	3.5	30.0
3.05	Forestry and Related Sciences									
	Research	15	203	1.4	13	0.4	236	1.8	2.3	17.2
3.06	Wildlife and Wildlands Management									
	Research	5	33	1.1	8	0.1	41	1.2	1.2	3.1
4.00	ARCHITECTURE AND RELATED PROGRAMS									
	Research	63	155	1.5	19	0.7	174	2.2	3.1	12.6
	Doctoral	5	274	3.5	58	1.3	249	3.6	3.6	18.6
4.02	Architecture									
	Research	27	159	1.7	21	0.4	179	1.8	2.8	12.8
4.03	City/Urban, Community and Regional Planning									
	Research	10	78	1.0	42	2.5	107	3.4	3.8	9.1

N* = number of institutions responding

BEST COPY AVAILABLE

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
4.06	Landscape Architecture									
	Research	14	177	1.5	2	0.2	194	2.1	3.0	15.7
5.00	AREA, ETHNIC AND CULTURAL STUDIES									
	Research	40	231	2.7	11	0.3	241	3.2	3.4	16.5
	Doctoral	13	241	3.5	6	0.3	245	3.6	3.6	16.5
	Comprehensive	10	305	3.8	na	na	305	3.8	3.8	20.3
5.01	Area Studies									
	Research	16	146	3.0	23	0.9	166	3.3	3.3	11.9
5.02	Ethnic and Cultural Studies									
	Research	23	286	2.5	7	0.2	294	3.0	3.2	17.3
	Doctoral	11	270	3.8	0	0.0	270	3.8	3.8	18.0
	Comprehensive	8	334	4.0	na	na	334	4.0	4.0	22.3
9.00	COMMUNICATIONS									
	Research	73	254	2.6	3	0.1	258	2.7	3.3	17.4
	Doctoral	25	194	2.8	3	0.1	199	2.9	3.1	13.5
	Comprehensive	59	194	3.3	6	0.2	199	3.4	3.5	13.5
	Baccalaureate	8	197	4.1	na	na	197	4.1	5.0	13.1
9.01	Communications, General									
	Research	27	281	2.8	1	0.1	283	2.9	3.0	18.9
	Doctoral	13	201	2.7	0	0.0	206	2.8	3.3	14.0
	Comprehensive	40	221	3.5	4	0.1	233	3.5	3.7	15.8
	Baccalaureate	5	218	3.1	na	na	218	3.1	4.3	14.5
9.04	Journalism and Mass Communications									
	Research	32	219	2.5	3	0.1	223	2.7	3.5	15.0
	Doctoral	7	228	3.1	5	0.1	232	3.2	3.3	15.7
	Comprehensive	12	133	3.7	2	0.2	134	3.8	3.8	9.0
9.07	Radio and Television Broadcasting									
	Research	7	210	1.8	19	0.5	229	2.4	4.0	16.1
	Comprehensive	5	134	2.2	na	na	134	2.2	2.2	8.9
11.00	COMPUTER AND INFORMATION SCIENCES									
	Research	43	466	2.6	10	0.2	478	2.9	3.6	32.4
	Doctoral	22	387	2.4	5	0.1	401	2.6	3.5	27.3
	Comprehensive	40	292	3.5	7	0.1	299	3.7	3.7	20.2
	Baccalaureate	8	245	4.3	na	na	245	4.3	4.3	16.4
11.01	Computer and Information Sciences, General									
	Research	36	507	2.6	7	0.1	518	2.9	3.4	33.6
	Doctoral	18	404	2.6	6	0.1	419	2.7	3.1	28.7
	Comprehensive	26	320	3.6	4	0.1	324	3.7	3.6	21.8
	Baccalaureate	7	272	4.4	na	na	272	4.4	4.4	18.2
11.07	Computer Science									
	Comprehensive	13	240	3.2	16	0.6	251	4.0	4.1	17.2
13.00	EDUCATION									
	Research	156	155	2.0	59	1.1	221	3.1	3.4	17.7
	Doctoral	71	144	1.8	39	0.7	189	2.7	3.0	14.8
	Comprehensive	145	163	2.9	28	0.8	202	3.6	3.8	15.1
	Baccalaureate	18	158	4.1	19	0.5	171	4.4	4.8	12.0
13.01	Education, General									
	Research	18	151	2.0	55	1.1	184	3.2	3.2	14.4
	Doctoral	8	120	1.9	97	2.2	180	3.5	3.5	15.6
	Comprehensive	28	160	2.5	27	1.0	206	3.2	3.3	15.8
	Baccalaureate	7	139	3.1	16	0.3	150	3.3	3.7	10.4

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
13.03	Curriculum and Instruction									
	Research	23	145	1.5	26	0.7	184	2.5	2.7	14.0
	Doctoral	11	201	2.6	14	0.3	225	2.8	3.1	16.1
	Comprehensive	12	173	3.0	31	1.0	205	3.3	4.0	15.0
13.04	Education Administration & Supervision									
	Research	23	82	1.7	109	2.5	206	4.7	4.7	21.4
	Doctoral	12	61	1.2	64	1.4	134	3.0	3.1	15.4
	Comprehensive	16	106	1.9	44	1.1	134	2.8	2.8	10.9
13.06	Educational Evaluation, Research and Statistics									
	Research	7	355	5.7	19	0.5	375	6.2	6.2	25.8
13.08	Educational Psychology									
	Research	13	173	1.2	130	2.2	303	3.4	3.4	26.0
13.09	Social and Philosophical Foundations of Education									
	Research	5	106	1.0	96	1.8	201	2.8	2.8	17.7
13.10	Special Education									
	Research	16	159	1.1	63	0.6	237	2.4	2.6	19.3
	Doctoral	8	133	2.1	47	1.1	180	3.2	3.3	14.1
	Comprehensive	21	120	2.9	40	0.8	156	4.0	4.0	12.0
13.11	Student Counseling and Personnel Services									
	Research	12	202	1.8	107	1.6	276	6.6	5.1	23.2
	Doctoral	7	53	0.0	189	3.3	242	3.3	5.0	24.5
	Comprehensive	14	84	1.9	106	2.1	190	4.1	4.1	17.4
13.12	General Teacher Education									
	Research	8	130	1.4	22	0.3	185	2.2	2.5	14.8
	Doctoral	6	107	1.3	63	1.4	171	2.6	2.7	14.2
	Comprehensive	22	194	2.8	13	0.6	224	3.2	3.3	16.3
13.13	Teacher Education, Specific Academic & Vocational Programs									
	Research	21	221	3.4	7	0.1	245	3.5	4.8	17.4
	Doctoral	10	221	2.5	2	0.2	225	2.7	3.1	15.2
	Comprehensive	26	230	4.4	2	0.1	238	4.5	5.5	16.3
14.00	ENGINEERING									
	Research	290	180	1.8	15	0.4	204	2.3	3.1	15.0
	Doctoral	74	165	2.2	14	0.8	175	2.8	4.0	12.3
	Comprehensive	50	148	2.7	5	0.2	154	2.8	3.9	10.6
14.01	Engineering, General									
	Research	8	173	1.9	17	0.1	186	2.0	3.2	13.0
	Doctoral	5	89	1.5	na	na	89	1.5	2.0	5.9
	Comprehensive	7	54	1.1	30	0.5	83	1.6	2.6	6.9
14.02	Aerospace, Aeronautical & Astronautical Engineering									
	Research	10	86	1.3	32	0.2	123	1.1	2.7	9.8
14.03	Agricultural Engineering									
	Research	18	113	1.2	0	0.0	117	1.6	2.6	8.0
14.05	Bioengineering and Biomedical Engineering									
	Research	9	1	0.2	44	0.9	45	1.0	1.0	4.9
14.07	Chemical Engineering									
	Research	37	121	1.7	3	0.1	126	1.8	2.6	8.7
	Doctoral	6	na	na	na	na	na	na	na	na
	Comprehensive	7	184	3.2	na	na	184	3.2	4.3	1

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
14.08	Civil Engineering									
	Research	41	193	1.9	21	0.7	202	2.6	3.6	14.4
	Doctoral	10	399	6.1	56	2.7	455	8.8	8.9	32.8
	Comprehensive	8	136	2.6	17	1.1	154	3.6	5.4	11.0
14.09	Computer Engineering									
	Research	5	413	2.3	7	0.0	420	2.3	2.6	28.3
14.10	Electrical, Electronics & Comm. Engineering									
	Research	43	196	2.1	21	0.4	231	2.7	3.1	16.9
	Doctoral	15	148	2.8	1	0.2	149	2.4	4.9	10.0
	Comprehensive	10	194	3.2	0	0.0	194	3.2	4.5	12.9
14.17	Industrial/Manufacturing Engineering									
	Research	23	175	1.3	57	0.9	231	2.8	2.9	17.9
	Doctoral	6	193	2.1	21	0.9	214	3.0	3.1	15.2
14.18	Materials Engineering									
	Research	15	102	1.2	9	0.1	124	1.4	1.4	9.2
14.19	Mechanical Engineering									
	Research	42	185	2.1	5	0.2	202	2.5	3.9	14.1
	Doctoral	14	112	2.0	1	0.8	116	2.8	2.3	8.0
	Comprehensive	7	258	2.9	0	0.0	258	2.9	3.6	17.2
14.23	Nuclear Engineering									
	Research	5	91	2.1	36	1.2	127	3.2	4.2	10.1
14.25	Petroleum Engineering									
	Research	5	na	na	na	na	na	na	na	na
14.99	Engineering, Other									
	Research	5	1454	10.8	na	na	1454	10.8	13.8	97.0
15.00	ENGINEERING-RELATED TECHNOLOGIES									
	Research	11	174	2.8	85	2.3	191	3.4	4.6	11.7
	Doctoral	9	163	3.8	20	0.9	176	4.3	4.3	12.3
	Comprehensive	28	178	3.6	3	0.1	178	3.7	4.3	11.9
15.06	Industrial Production Technologies									
	Comprehensive	11	209	3.6	3	0.1	211	3.7	4.4	14.1
15.99	Engineering-Related Technologies, Other									
	Comprehensive	5	na	na	na	na	na	na	na	na
16.00	FOREIGN LANGUAGES AND LITERATURES									
	Research	141	184	2.7	4	0.2	189	2.9	3.1	13.1
	Doctoral	32	219	2.8	3	0.1	221	2.8	3.2	14.8
	Comprehensive	54	206	3.5	0	0.0	206	3.5	3.7	13.8
	Baccalaureate	18	199	4.2	na	na	199	4.2	4.2	13.3
16.01	Foreign Languages and Literature									
	Research	43	208	2.8	3	0.2	212	2.9	3.2	14.3
	Doctoral	20	239	3.0	1	0.1	241	3.1	3.3	16.1
	Comprehensive	39	214	3.6	0	0.0	214	3.6	3.8	14.3
	Baccalaureate	9	201	4.1	na	na	201	4.1	4.1	13.4
16.03	East and Southeast Asian Languages and Literatures									
	Research	9	234	2.8	7	0.4	239	3.2	3.4	16.2
16.04	East European Languages and Literatures									
	Research	13	86	1.8	9	0.6	95	2.3	2.4	9.2

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
16.05	Germanic Languages and Literatures									
	Research	20	102	2.5	10	0.4	111	2.8	3.1	7.8
16.09	Romance Languages and Literatures									
	Research	25	187	2.9	4	0.1	193	3.0	3.0	13.1
	Doctoral	5	186	2.4	5	0.2	190	2.5	3.1	12.9
	Comprehensive	8	237	3.6	na	na	237	3.6	3.6	15.8
16.11	Middle Eastern Languages and Literatures									
	Research	5	242	2.7	2	0.0	244	2.8	2.8	16.4
16.12	Classical & Ancient Near Eastern Languages & Literatures									
	Research	21	209	3.2	0	0.0	209	3.2	3.2	14.0
19.00	HOME ECONOMICS									
	Research	58	273	2.0	2	0.1	279	2.3	3.2	18.8
	Doctoral	18	267	2.7	5	0.1	275	2.9	3.6	18.7
	Comprehensive	24	218	3.2	4	0.1	222	3.4	3.7	15.0
19.01	Home Economics, General									
	Research	13	185	2.5	1	0.0	194	2.5	3.3	13.3
	Comprehensive	14	280	3.6	8	0.1	285	3.7	4.2	19.2
19.04	Family/Consumer Resource Mngmt									
	Research	7	244	2.3	4	0.1	248	2.4	2.4	16.7
19.05	Food & Nutrition Studies									
	Research	14	403	2.2	7	0.1	410	2.6	3.0	27.7
	Comprehensive	5	123	2.4	8	0.7	131	3.0	3.0	9.1
19.07	Individual & Family Development Studies									
	Research	11	425	2.3	3	0.0	428	2.4	3.4	28.6
19.09	Clothing & Textile Studies									
	Research	9	214	2.0	1	0.0	215	2.0	3.4	14.3
22.00	LAW AND LEGAL STUDIES									
	Research	29	4	0.1	192	2.7	211	2.8	2.9	22.2
	Doctoral	8	179	1.5	118	2.8	152	2.8	2.9	14.6
	Comprehensive	10	85	1.3	159	2.2	129	1.8	1.8	12.8
22.01	Law and Legal Studies									
	Research	29	4	0.1	192	2.7	211	2.8	2.9	22.2
	Doctoral	8	179	1.5	118	2.8	152	2.8	2.9	14.6
	Comprehensive	10	85	1.3	159	2.2	129	1.8	1.8	12.8
23.00	ENGLISH LANGUAGE AND LITERATURE/LETTERS									
	Research	76	243	2.9	4	0.1	252	3.0	3.1	17.1
	Doctoral	32	219	2.9	6	0.2	228	3.2	3.4	15.6
	Comprehensive	69	257	3.5	0	0.0	257	3.6	3.7	17.2
	Baccalaureate	15	219	3.9	21	0.5	241	4.0	4.3	16.3
23.01	English Language & Literature, General									
	Research	51	254	3.1	3	0.1	254	3.1	3.3	17.1
	Doctoral	25	226	3.0	5	0.1	231	3.1	3.3	15.7
	Comprehensive	58	259	3.5	0	0.0	259	3.6	3.7	17.3
	Baccalaureate	12	204	3.8	21	0.5	208	3.9	4.1	14.1
23.03	Comparative Literature									
	Research	8	245	1.9	1	0.0	249	2.0	2.2	16.8
23.04	English Composition									
	Comprehensive	5	256	4.4	na	na	256	4.4	4.4	17.1

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
23.10	Speech and Rhetorical Studies									
	Research	15	241	3.0	9	0.2	226	3.2	3.1	15.4
	Doctoral	6	189	2.6	34	1.0	216	3.4	3.9	15.6
	Comprehensive	6	352	5.2	na	na	352	5.2	5.2	23.5
24.00	LIBERAL ARTS & SCIENCES, GENERAL STUDIES & HUMANITIES									
	Research	20	290	3.9	7	0.3	293	4.0	4.1	19.7
	Doctoral	7	151	4.1	4	0.1	153	4.2	4.2	10.3
	Comprehensive	11	277	3.9	na	na	277	3.9	3.9	18.4
24.01	Liberal Arts and Science, General Studies * Humanities									
	Research	20	290	3.9	7	0.3	293	4.0	4.1	19.7
	Doctoral	7	151	4.1	4	0.1	153	4.2	4.2	10.3
	Comprehensive	11	277	3.9	na	na	277	3.9	3.9	18.4
25.00	LIBRARY SCIENCE									
	Research	14	116	0.9	131	1.8	157	2.3	2.3	15.8
25.01	Library Science/Librarianship									
	Research	14	116	0.9	131	1.8	157	2.3	2.3	15.8
26.00	BIOLOGICAL SCIENCES/LIFE SCIENCES									
	Research	141	333	1.3	6	0.2	345	1.7	2.8	22.6
	Doctoral	29	410	2.0	2	0.1	419	2.2	4.2	28.3
	Comprehensive	62	293	2.4	4	0.2	300	2.7	5.0	20.3
	Baccalaureate	14	158	1.6	0	0.0	158	1.6	4.6	10.5
26.01	Biology, General									
	Research	44	515	1.8	2	0.0	521	1.9	3.3	35.0
	Doctoral	24	431	2.0	6	0.1	441	2.1	4.1	29.8
	Comprehensive	58	293	2.4	4	0.2	300	2.7	5.0	20.3
	Baccalaureate	12	160	1.6	na	na	160	1.6	4.8	10.7
26.02	Biochemistry and Biophysics									
	Research	16	23	0.7	11	0.2	31	0.9	1.0	2.4
26.03	Botany									
	Research	21	161	2.3	3	1.0	169	3.6	5.1	11.7
26.05	Microbiology/Bacteriology									
	Research	15	295	1.3	1	0.0	298	1.4	2.0	20.0
26.06	Miscellaneous Biological Specializations									
	Research	14	239	0.5	10	0.3	382	0.9	1.0	25.9
26.07	Zoology									
	Research	25	213	1.4	2	0.3	248	1.8	2.5	18.1
27.00	MATHEMATICS									
	Research	75	410	2.6	5	0.1	424	2.8	3.2	28.8
	Doctoral	28	404	3.1	6	0.1	411	3.2	3.2	27.7
	Comprehensive	56	338	3.7	0	0.0	338	3.7	3.8	22.5
	Baccalaureate	11	285	3.5	na	na	285	3.5	3.7	19.0
27.01	Mathematics									
	Research	49	422	2.9	0	0.0	423	3.0	3.2	28.2
	Doctoral	25	407	3.2	1	0.0	408	3.2	3.2	27.3
	Comprehensive	55	342	3.8	0	0.0	343	3.8	3.9	22.8
	Baccalaureate	10	241	3.0	na	na	241	3.0	3.3	16.1
27.03	Applied Mathematics									
	Research	5	na	na	na	na	na	na	na	na
27.05	Mathematical Statistics									
	Research	21	393	1.9	15	0.4	421	2.5	3.0	29.3

BEST COPY AVAILABLE

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
29.00	MILITARY TECHNOLOGIES									
	Comprehensive	7	na	na	na	na	na	na	na	na
29.01	Military Technologies									
	Comprehensive	7	na	na	na	na	na	na	na	na
30.00	MULTI/INTERDISCIPLINARY STUDIES									
	Research	19	174	0.4	20	0.6	206	1.8	2.0	16.0
	Doctoral	11	242	4.2	23	1.1	261	5.0	5.0	18.2
	Comprehensive	15	242	2.9	0	0.0	242	2.9	3.8	16.2
30.08	Mathematics and Computer Science									
	Comprehensive	5	383	3.7	na	na	383	3.7	5.4	25.5
30.99	Multi/Interdisciplinary Studies, Other									
	Comprehensive	5	112	1.3	na	na	112	1.3	1.3	7.4
31.00	PARKS, RECREATION, LEISURE & FITNESS STUDIES									
	Research	29	314	4.2	6	0.0	352	4.4	5.6	24.1
	Doctoral	9	253	3.3	5	0.1	257	3.3	6.2	17.3
	Comprehensive	40	214	5.1	8	0.2	225	5.5	6.1	15.5
	Baccalaureate	7	213	6.3	na	na	213	6.3	8.8	14.2
31.01	Parks, Recreation and Leisure Studies									
	Research	6	214	3.3	2	0.1	216	3.4	4.3	14.5
	Comprehensive	5	na	na	na	na	na	na	na	na
31.05	Health and Physical Education/Fitness									
	Research	19	326	3.5	9	0.3	345	3.8	4.9	23.9
	Doctoral	7	254	3.3	6	0.1	258	3.4	6.8	17.4
	Comprehensive	32	220	5.3	7	0.2	231	5.8	6.4	15.9
	Baccalaureate	7	213	6.3	na	na	213	6.3	8.8	14.2
38.00	PHILOSOPHY AND RELIGION									
	Research	68	401	2.8	1	0.2	405	2.9	2.8	27.2
	Doctoral	31	278	2.7	9	0.1	283	2.6	2.9	19.1
	Comprehensive	60	276	3.3	0	0.0	270	3.2	3.2	18.2
	Baccalaureate	15	196	3.3	na	na	200	3.4	3.4	13.5
38.01	Philosophy									
	Research	49	403	2.9	1	0.0	405	3.0	2.8	27.1
	Doctoral	24	263	3.0	1	0.0	267	2.6	3.1	17.9
	Comprehensive	29	301	3.1	na	na	301	3.1	3.1	20.0
	Baccalaureate	8	154	3.0	na	na	154	3.0	3.0	10.3
38.02	Religion/Religious Studies									
	Research	19	267	2.6	6	0.5	275	3.3	3.3	18.7
	Doctoral	7	335	2.2	14	0.3	348	2.5	2.5	23.8
	Comprehensive	18	179	2.8	29	0.5	172	2.7	2.7	12.1
	Baccalaureate	5	na	na	na	na	na	na	na	na
38.99	Philosophy and Religion									
	Comprehensive	13	327	3.8	0	0.0	327	3.8	3.8	21.8
40.00	PHYSICAL SCIENCES									
	Research	174	425	1.6	6	0.2	434	2.0	3.1	29.4
	Doctoral	73	496	2.2	4	0.2	506	2.4	4.5	31.8
	Comprehensive	127	280	2.5	1	0.0	281	2.5	4.7	18.8
	Baccalaureate	21	154	2.4	na	na	154	2.4	4.9	10.3
40.01	Physical Sciences, General									
	Comprehensive	10	605	2.8	na	na	605	2.8	4.3	40.3
40.02	Astronomy									
	Research	9	739	2.3	0	0.0	739	2.3	2.3	49.3

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
40.04	Atmospheric Sciences and Meteorology									
	Research	10	150	1.5	31	0.3	187	1.8	2.8	14.1
40.05	Chemistry									
	Research	50	642	1.9	1	0.0	646	2.0	4.3	43.2
	Doctoral	25	533	2.2	1	0.0	535	2.4	3.8	35.7
	Comprehensive	47	224	1.9	0	0.1	225	2.0	4.5	15.1
	Baccalaureate	9	76	2.4	na	na	76	2.4	5.5	5.0
40.06	Geological and Related Sciences									
	Research	45	288	1.6	6	0.4	298	2.1	2.5	20.3
	Doctoral	18	653	3.0	5	0.2	687	3.2	3.7	47.3
	Comprehensive	22	363	2.2	0	na	363	2.2	3.0	24.2
40.07	Miscellaneous Physical Sciences									
	Research	8	236	1.5	21	0.2	256	1.7	1.7	18.0
40.08	Physics									
	Research	49	287	1.4	7	0.3	299	1.6	3.1	20.5
	Doctoral	25	386	1.5	0	0.1	388	1.6	4.5	26.0
	Comprehensive	42	287	3.3	0	0.0	287	3.3	5.5	19.1
	Baccalaureate	6	na	na	na	na	na	na	na	na
42.00	PSYCHOLOGY									
	Research	52	545	2.3	9	0.2	557	2.7	3.0	37.7
	Doctoral	28	512	2.6	8	0.1	493	3.0	3.3	33.7
	Comprehensive	62	311	3.1	9	0.3	324	3.6	3.6	22.2
	Baccalaureate	11	188	2.8	na	na	202	3.1	3.2	14.2
42.01	Psychology									
	Research	50	546	2.3	8	0.2	558	2.6	2.9	37.8
	Doctoral	25	532	2.7	5	0.4	541	3.4	3.6	36.4
	Comprehensive	58	318	3.1	9	0.3	329	3.5	3.6	22.4
	Baccalaureate	11	188	2.8	na	na	202	3.1	3.2	14.2
43.00	PROTECTIVE SERVICES									
	Research	14	363	2.8	19	0.4	379	3.1	3.1	26.0
	Doctoral	6	295	2.6	na	na	295	2.6	2.6	19.6
	Comprehensive	16	290	3.2	38	0.6	309	3.4	3.6	21.4
43.01	Criminal Justice and Corrections									
	Research	14	363	2.8	19	0.4	379	3.1	3.1	26.0
	Doctoral	6	295	2.6	na	na	295	2.6	2.6	19.6
	Comprehensive	15	312	3.3	51	0.8	307	3.6	3.6	21.4
44.00	PUBLIC ADMINISTRATION AND SERVICES									
	Research	45	52	0.7	105	1.5	173	2.0	2.1	16.1
	Doctoral	23	106	1.4	72	1.5	158	2.6	2.6	13.1
	Comprehensive	38	179	2.5	62	1.5	197	3.0	3.0	14.7
44.04	Public Administration									
	Research	11	17	0.8	38	1.1	51	1.7	1.9	5.1
	Doctoral	9	113	1.6	19	1.6	153	3.0	3.0	12.8
	Comprehensive	8	266	2.2	70	2.3	186	2.8	3.0	14.7
44.05	Public Policy Analysis									
	Research	9	23	0.3	84	2.2	103	2.4	2.4	10.6
44.07	Social Work									
	Research	25	84	0.9	128	1.3	247	2.0	2.1	23.0
	Doctoral	11	107	1.3	97	1.7	166	2.7	2.5	14.3
	Comprehensive	28	186	2.6	66	1.4	229	3.2	3.2	16.6
45.00	SOCIAL SCIENCES AND HISTORY									
	Research	278	438	2.4	6	0.2	445	2.7	2.7	30.1
	Doctoral	122	336	2.7	11	0.5	347	3.1	3.4	23.4
	Comprehensive	209	355	3.4	7	0.3	360	3.6	3.7	24.2
	Baccalaureate	37	234	3.6	16	0.2	239	3.7	3.3	16.1

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
45.01	Social Sciences, General									
	Doctoral	5	324	2.4	94	2.2	290	2.9	2.9	21.4
	Comprehensive	14	485	4.0	1	0.4	485	4.3	4.3	32.3
45.02	Anthropology									
	Research	38	457	2.7	8	0.2	468	3.0	3.4	31.7
	Doctoral	16	406	2.3	2	0.0	410	2.4	2.5	27.5
	Comprehensive	14	330	4.3	0	0.0	330	4.3	4.4	22.0
45.06	Economics									
	Research	41	654	2.4	6	0.2	670	2.7	2.7	45.4
	Doctoral	17	332	2.6	16	0.4	356	3.1	3.1	27.5
	Comprehensive	24	262	3.5	3	0.1	278	3.7	3.8	19.3
	Baccalaureate	6	149	2.7	na	na	149	2.7	2.7	9.9
45.07	Geography									
	Research	33	476	2.2	7	0.2	485	2.5	2.6	32.8
	Doctoral	11	428	2.7	19	0.9	447	3.4	5.1	30.6
	Comprehensive	18	463	3.8	3	0.1	465	3.9	4.3	31.0
45.08	History									
	Research	51	372	2.4	4	0.1	379	2.5	2.6	25.6
	Doctoral	24	349	3.0	4	0.2	359	3.2	3.3	27.7
	Comprehensive	50	302	3.2	6	0.3	305	3.3	3.3	20.5
	Baccalaureate	9	235	3.5	na	na	235	3.5	3.5	15.6
45.10	Political Science and Government									
	Research	50	377	2.7	4	0.1	384	2.8	2.8	25.9
	Doctoral	22	215	2.6	6	0.2	234	3.0	3.0	16.4
	Comprehensive	42	347	3.6	1	0.1	352	3.7	3.8	23.7
	Baccalaureate	7	234	5.6	na	na	234	5.6	7.6	15.6
45.11	Sociology									
	Research	49	505	2.7	3	0.1	516	2.7	2.8	34.8
	Doctoral	21	436	3.6	6	0.2	444	3.6	3.6	30.0
	Comprehensive	43	381	3.2	6	0.4	388	3.4	3.4	26.1
	Baccalaureate	8	239	3.4	32	0.4	272	3.8	3.8	19.6
45.99	Social Sciences and History, Other									
	Research	5	208	1.8	42	0.6	250	2.4	2.5	18.5
50.00	VISUAL AND PERFORMING ARTS									
	Research	159	164	1.9	5	0.2	170	2.1	2.7	11.6
	Doctoral	68	125	2.5	7	0.3	134	2.9	3.2	9.4
	Comprehensive	147	160	4.2	2	0.1	161	4.3	4.6	10.8
	Baccalaureate	27	153	5.2	na	na	153	5.2	5.7	10.2
50.01	Visual and Performing Arts									
	Research	6	233	3.2	na	na	233	3.2	3.6	15.5
	Comprehensive	11	200	4.4	2	0.0	201	4.4	4.8	13.4
	Baccalaureate	5	102	29.0	na	na	102	29.0	29.0	6.8
50.03	Dance									
	Research	10	125	2.5	4	0.3	128	2.7	3.3	8.7
50.04	Design and Applied Arts									
	Research	7	205	1.8	4	0.1	209	1.9	4.1	14.1
	Comprehensive	5	139	4.4	na	na	144	4.5	4.5	9.9
50.05	Dramatic/Theater Arts and Stagecraft									
	Research	39	140	1.8	5	0.2	146	2.0	2.2	10.0
	Doctoral	17	143	2.4	19	0.4	159	3.1	3.4	11.3
	Comprehensive	31	192	3.8	na	na	192	3.8	3.9	12.8
	Baccalaureate	6	205	4.3	na	na	205	4.3	4.3	13.6

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
50.07	Fine Arts and Art Studies									
	Research	47	184	2.0	4	0.2	189	2.1	3.0	12.9
	Doctoral	23	130	2.0	2	0.1	132	2.0	2.7	8.9
	Comprehensive	44	173	3.1	1	0.1	174	3.3	3.8	11.7
	Baccalaureate	8	167	3.7	na	na	167	3.7	4.5	11.2
50.09	Music									
	Research	46	119	1.8	6	0.3	127	1.9	2.6	8.8
	Doctoral	21	96	2.9	8	0.7	108	3.5	3.7	7.7
	Comprehensive	46	130	4.6	1	0.1	131	4.7	5.2	8.8
	Baccalaureate	8	134	6.4	na	na	134	6.4	7.5	8.9
51.00	HEALTH PROFESSIONS AND RELATED SCIENCES									
	Research	138	95	0.8	36	0.6	136	1.5	2.0	10.9
	Doctoral	60	130	1.6	57	0.7	186	2.3	3.3	14.2
	Comprehensive	96	113	1.8	36	0.5	138	2.3	2.9	10.7
	Baccalaureate	10	83	1.4	18	0.9	89	1.7	2.5	6.2
51.02	Communication Disorders Sciences and Services									
	Research	29	135	1.1	29	0.6	155	1.6	1.9	11.9
	Doctoral	12	219	2.0	104	1.5	474	3.8	3.8	28.2
	Comprehensive	19	87	2.0	11	1.0	117	2.9	3.3	9.1
51.07	Health and Medical Administrative Services									
	Research	6	100	1.5	na	na	140	2.8	3.0	11.1
	Comprehensive	9	153	3.3	23	0.3	165	3.4	3.8	11.5
51.10	Health and Medical Laboratory Technologies									
	Research	5	67	2.7	na	na	67	2.7	4.1	4.5
51.16	Nursing									
	Research	30	86	0.6	14	0.3	103	0.9	1.8	7.6
	Doctoral	19	104	1.5	14	0.2	116	1.7	2.4	8.3
	Comprehensive	33	100	1.5	11	0.3	111	1.8	2.8	8.3
51.20	Pharmacy Administration and Pharmaceutics									
	Research	13	190	0.9	46	0.4	240	1.2	2.5	18.2
51.22	Public Health									
	Research	9	225	0.8	185	2.5	364	3.1	3.1	32.5
51.23	Rehabilitation/Therapeutic Services									
	Research	10	96	0.6	106	1.5	202	2.4	3.0	21.1
	Doctoral	5	175	1.5	179	0.0	354	1.6	2.3	31.6
	Comprehensive	8	178	1.6	na	na	228	2.1	3.0	17.5
51.24	Vetennary Medicine (D.V.M.)									
	Research	7	0	0.0	24	0.3	24	0.3	0.5	2.7
52.00	BUSINESS MANAGEMENT & ADMINISTRATIVE SERVICE									
	Research	201	426	2.3	25	0.3	462	2.8	2.9	32.5
	Doctoral	87	325	3.1	18	0.3	336	3.3	3.3	23.0
	Comprehensive	186	283	3.0	16	0.3	295	3.2	3.3	20.5
	Baccalaureate	12	228	3.9	na	na	228	3.9	4.1	15.2
52.01	Business									
	Research	17	325	2.0	69	0.9	395	2.9	3.2	29.4
	Doctoral	7	334	2.9	54	0.8	380	3.6	3.6	27.4
	Comprehensive	12	296	3.3	34	0.7	320	3.8	3.8	22.4
	Baccalaureate	5	294	2.9	na	na	294	2.9	3.4	19.6
52.02	Business Administration and Management									
	Research	32	423	2.5	28	0.3	450	2.8	2.8	31.9
	Doctoral	15	413	2.9	4	0.1	423	2.9	3.1	28.6
	Comprehensive	40	306	3.1	30	0.3	307	3.4	3.4	22.0
	Baccalaureate	5	196	4.2	na	na	196	4.2	4.2	13.0

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
52.03	Accounting									
	Research	35	384	2.6	15	0.2	409	2.7	2.9	28.4
	Doctoral	15	345	3.1	6	0.2	333	3.4	3.4	22.8
	Comprehensive	43	307	3.2	5	0.1	314	3.3	3.3	21.2
52.06	Business/Managerial Economics									
	Research	13	413	2.0	43	0.6	464	2.7	2.7	33.2
	Doctoral	5	149	1.5	67	0.9	216	2.4	2.6	17.4
	Comprehensive	16	227	2.8	42	0.5	276	3.3	3.3	20.6
52.08	Financial Management and Services									
	Research	29	422	2.4	18	0.3	456	2.8	3.0	31.9
	Doctoral	11	253	2.8	24	0.2	296	3.1	3.1	21.7
	Comprehensive	21	227	3.2	1	0.0	228	3.2	3.2	15.2
52.09	Hospitality Services Management									
	Research	9	251	2.1	1	0.0	251	2.1	3.8	16.8
	Comprehensive	5	198	2.9	na	na	204	3.1	3.1	13.8
52.10	Human Resources Management									
	Research	11	168	1.3	57	1.1	225	2.5	2.5	17.5
	Comprehensive	5	na	na	na	na	59	1.1	1.1	6.2
52.12	Business Information and Data Processing Services									
	Research	5	1030	3.2	5	0.1	1035	3.2	3.2	69.2
	Doctoral	9	365	3.7	20	0.5	376	4.0	4.0	25.6
	Comprehensive	11	332	3.7	16	0.4	300	3.9	4.0	20.0
52.13	Business Quantitative Methods & Management Science									
	Research	11	442	2.5	38	0.4	484	3.0	3.0	34.1
52.14	Marketing Management and Research									
	Research	30	526	2.6	11	0.2	554	3.1	3.2	38.2
	Doctoral	12	367	3.0	8	0.1	374	3.1	3.1	25.3
	Comprehensive	24	273	2.6	18	0.3	295	2.9	2.9	20.6

Delaware Study National Benchmarks—Norms by Carnegie Classification

TABLE THREE

Normative Number of Student Credit Hours, Organized Class Sections, and FTE Students Taught per Term per FTE Instructional Faculty for Supplemental Faculty (Fall 1997)

CIP	Discipline/Carnegie Classification	N*	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
1.00	AGRICULTURAL BUSINESS AND PRODUCTION									
	Research	34	124	1.5	23	0.6	144	2.2	3.5	10.5
1.01	Agricultural Business and Management									
	Research	21	205	0.9	28	0.6	233	2.1	3.4	16.8
2.00	AGRICULTURAL SCIENCES									
	Research	69	150	1.9	18	0.3	172	2.4	3.1	12.4
	Comprehensive	9	165	2.4	5	0.4	167	2.6	3.4	11.3
2.01	Agriculture/Agricultural Sciences									
	Comprehensive	7	231	3.4	na	na	234	3.6	7.7	15.8
2.02	Animal Sciences									
	Research	24	136	1.7	6	0.2	144	2.0	3.0	9.9
2.03	Food Sciences and Technology									
	Research	12	180	2.6	31	0.2	210	2.8	3.2	15.4
2.04	Plant Sciences									
	Research	24	178	2.0	15	0.3	197	2.5	4.5	13.9
2.05	Soil Sciences									
	Research	6	33	0.5	73	0.4	107	0.9	1.5	10.4
3.00	CONSERVATION & RENEWABLE NATURAL RESOURCES									
	Research	40	162	2.3	53	0.7	236	3.4	4.9	19.0
	Doctoral	9	191	2.9	53	1.6	235	4.3	4.9	17.6
	Comprehensive	5	184	2.8	na	na	218	4.7	6.6	16.1
3.01	Natural Resources Conservation									
	Research	9	110	0.7	33	3.1	143	3.8	4.4	11.0
3.05	Forestry and Related Sciences									
	Research	15	211	2.6	21	0.2	196	2.3	3.6	14.0
3.06	Wildlife and Wildlands Management									
	Research	5	55	0.9	138	1.7	193	2.6	4.0	19.0
4.00	ARCHITECTURE AND RELATED PROGRAMS									
	Research	63	150	1.8	49	1.4	200	3.2	4.3	16.3
	Doctoral	5	208	3.3	75	1.4	212	3.5	3.5	16.6
4.02	Architecture									
	Research	27	209	2.0	21	0.8	211	2.7	4.3	15.0
4.03	City/Urban, Community and Regional Planning									
	Research	10	119	2.7	74	2.6	156	4.6	5.0	13.7

N* = number of institutions responding

BEST COPY AVAILABLE

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
4.06	Landscape Architecture									
	Research	14	115	1.1	62	2.5	177	3.5	4.2	14.5
5.00	AREA, ETHNIC AND CULTURAL STUDIES									
	Research	40	218	2.7	16	0.5	236	3.5	3.6	16.6
	Doctoral	13	318	5.1	2	0.1	319	5.2	5.2	21.3
	Comprehensive	10	206	3.4	na	na	216	3.7	3.7	14.8
5.01	Area Studies									
	Research	16	145	2.1	15	0.6	173	3.1	3.2	12.7
5.02	Ethnic and Cultural Studies									
	Research	23	278	3.4	11	0.3	291	3.8	3.9	19.9
	Doctoral	11	318	5.1	2	0.1	319	5.2	5.2	21.3
	Comprehensive	8	192	3.3	na	na	192	3.3	3.3	12.8
9.00	COMMUNICATIONS									
	Research	73	229	2.9	5	0.1	230	3.1	3.8	15.7
	Doctoral	25	275	3.9	1	0.1	277	4.0	4.1	18.5
	Comprehensive	59	204	3.5	5	0.2	208	3.7	4.0	14.0
	Baccalaureate	8	140	4.2	na	na	140	4.2	4.6	9.4
9.01	Communications, General									
	Research	27	272	3.5	0	0.0	276	3.6	4.5	18.7
	Doctoral	13	265	4.5	1	0.0	267	4.3	4.7	18.0
	Comprehensive	40	217	3.4	4	0.1	220	3.5	3.7	14.8
	Baccalaureate	5	140	4.2	na	na	140	4.2	4.6	9.4
9.04	Journalism and Mass Communications									
	Research	32	195	2.5	7	0.3	204	2.7	3.7	14.0
	Doctoral	7	423	3.6	3	0.2	425	3.8	3.8	28.4
	Comprehensive	12	136	3.9	10	0.4	139	4.1	4.5	9.4
9.07	Radio and Television Broadcasting									
	Research	7	338	3.9	4	0.2	342	4.0	5.7	23.0
	Comprehensive	5	236	5.3	na	na	236	5.3	5.4	15.7
11.00	COMPUTER AND INFORMATION SCIENCES									
	zResearch	43	322	2.2	17	0.4	347	2.6	3.5	24.3
	Doctoral	22	369	3.7	9	0.1	385	3.9	4.5	27.8
	Comprehensive	40	259	3.4	7	0.2	266	3.6	3.9	18.0
	Baccalaureate	8	220	3.3	na	na	220	3.3	4.3	14.7
11.01	Computer and Information Sciences, General									
	Research	36	326	2.1	14	0.3	350	2.5	3.3	24.4
	Doctoral	18	353	3.7	12	0.2	373	3.9	4.6	27.7
	Comprehensive	26	229	3.2	5	0.4	235	3.4	3.9	15.9
	Baccalaureate	7	226	3.3	na	na	226	3.3	4.1	15.1
11.07	Computer Science									
	Comprehensive	13	250	5.1	17	0.2	259	5.2	5.3	17.7
13.00	EDUCATION									
	Research	156	151	2.2	68	1.5	232	3.8	4.2	18.5
	Doctoral	71	196	2.4	62	1.2	252	3.8	4.1	19.3
	Comprehensive	145	149	2.7	57	1.2	201	3.9	4.7	16.2
	Baccalaureate	18	144	3.7	62	1.8	176	4.2	4.3	13.7
13.01	Education, General									
	Research	18	152	2.7	58	1.4	243	4.2	4.9	19.2
	Doctoral	8	205	2.8	65	1.1	232	3.4	3.4	18.0
	Comprehensive	28	131	2.3	42	1.1	177	3.4	3.5	13.8
	Baccalaureate	7	109	3.5	64	2.0	107	3.7	3.7	8.2

13.03	Curriculum and Instruction								
	Research	23	166	2.2	57	1.2	241	3.2	3.5	19.4
	Doctoral	11	190	2.3	34	0.9	236	3.2	4.3	17.8
	Comprehensive	12	182	3.7	23	0.7	225	4.5	5.1	16.9
13.04	Education Administration & Supervision									
	Research	23	112	1.6	117	2.6	240	4.5	4.9	23.6
	Doctoral	12	174	2.5	53	1.9	283	4.4	4.4	22.2
	Comprehensive	16	109	2.0	108	2.3	185	4.0	4.4	17.1
13.06	Educational Evaluation, Research and Statistics									
	Research	7	182	2.5	123	1.9	304	4.4	4.4	25.7
13.08	Educational Psychology									
	Research	13	156	1.6	59	1.3	207	2.9	3.0	16.5
13.09	Social and Philosophical Foundations of Education									
	Research	5	176	2.9	63	0.9	239	3.8	3.8	18.7
13.10	Special Education									
	Research	16	117	1.4	54	1.1	160	2.9	3.1	13.1
	Doctoral	8	247	2.5	75	1.4	306	3.9	4.0	23.7
	Comprehensive	21	135	2.3	42	1.4	180	3.7	4.2	14.6
13.11	Student Counseling and Personnel Services									
	Research	12	104	2.2	159	3.6	263	5.9	6.6	24.6
	Doctoral	7	0	0.5	148	4.2	148	4.5	4.5	16.5
	Comprehensive	14	69	1.0	140	2.8	203	4.0	4.3	19.7
13.12	General Teacher Education									
	Research	8	184	1.7	56	1.5	262	3.2	3.5	20.9
	Doctoral	6	166	1.3	59	0.0	225	1.9	2.4	17.6
	Comprehensive	22	170	2.2	48	1.1	226	3.5	4.0	17.6
13.13	Teacher Education, Specific Academic & Vocational Programs									
	Research	21	229	3.9	19	0.2	254	4.3	5.4	18.1
	Doctoral	10	237	4.0	15	0.4	254	4.3	5.3	17.7
	Comprehensive	26	185	4.1	6	0.2	201	4.4	5.8	14.1
14.00	ENGINEERING									
	Research	290	162	1.8	27	0.7	200	2.6	3.7	14.7
	Doctoral	74	182	2.3	26	0.9	199	2.9	4.4	14.9
	Comprehensive	50	179	3.1	23	0.8	194	3.5	4.7	14.1
14.01	Engineering, General									
	Research	8	145	2.3	5	0.0	149	2.3	3.0	8.1
	Doctoral	5	228	2.6	na	na	228	2.6	3.9	15.2
	Comprehensive	7	176	7.0	27	0.5	198	7.4	10.6	14.2
14.02	Aerospace, Aeronautical & Astronautical Engineering									
	Research	10	155	1.9	12	0.5	167	2.4	3.1	11.6
14.03	Agricultural Engineering									
	Research	18	150	1.3	2	0.0	155	1.3	3.1	10.6
14.05	Bioengineering and Biomedical Engineering									
	Research	9	197	1.4	21	4.0	218	5.4	6.1	15.4
14.07	Chemical Engineering									
	Research	37	85	1.4	33	0.8	118	2.2	2.9	9.3
	Doctoral	6	149	0.9	16	0.6	165	1.6	2.6	11.7
	Comprehensive	7	175	2.6	16	0.6	192	3.2	4.4	13.5
14.08	Civil Engineering									
	Research	41	160	1.7	32	0.8	213	2.8	3.8	16.2
	Doctoral	10	252	3.1	13	0.4	275	3.2	3.4	19.3
	Comprehensive	8	239	2.7	61	1.3	279	3.5	4.7	20.4

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
14.09	Computer Engineering									
	Research	5	390	2.4	24	0.7	414	3.1	5.9	28.6
14.10	Electrical, Electronics & Comm. Engineering									
	Research	43	209	1.8	21	0.5	241	2.7	4.5	17.5
	Doctoral	15	192	2.3	19	1.1	233	3.4	4.4	14.5
	Comprehensive	10	133	4.1	9	0.6	141	4.6	5.4	9.7
14.17	Industrial/Manufacturing Engineering									
	Research	23	150	2.2	48	0.8	216	2.8	3.4	18.5
	Doctoral	6	254	4.8	19	0.8	273	5.6	5.7	19.0
14.18	Materials Engineering									
	Research	15	135	2.0	33	0.9	135	3.4	3.7	10.5
14.19	Mechanical Engineering									
	Research	42	142	1.9	32	0.5	188	2.5	3.2	14.6
	Doctoral	14	124	1.9	21	1.0	156	3.2	4.9	11.8
	Comprehensive	7	265	3.7	5	0.4	269	4.1	4.8	18.1
14.23	Nuclear Engineering									
	Research	5	115	3.7	31	2.2	146	5.9	5.9	11.1
14.25	Petroleum Engineering									
	Research	5	66	1.0	0	0.0	66	1.0	2.0	4.4
14.99	Engineering, Other									
	Research	5	624	3.6	13	0.1	630	3.7	5.6	42.3
15.00	ENGINEERING-RELATED TECHNOLOGIES									
	Research	11	169	3.8	23	0.5	159	3.1	4.0	11.1
	Doctoral	9	205	4.2	1	0.0	213	4.5	4.8	13.0
	Comprehensive	28	190	4.0	0	0.0	190	4.0	4.7	12.7
15.06	Industrial Production Technologies									
	Comprehensive	11	185	4.0	0	0.0	185	4.0	4.3	12.4
15.99	Engineering-Related Technologies, Other									
	Comprehensive	5	252	3.4	0	0.0	252	3.4	4.4	16.8
16.00	FOREIGN LANGUAGES AND LITERATURES									
	Research	141	189	2.8	8	0.5	202	3.3	3.6	14.1
	Doctoral	32	273	3.4	3	0.1	276	3.3	3.9	18.5
	Comprehensive	54	231	3.8	1	0.0	231	3.8	4.3	15.4
	Baccalaureate	18	136	3.5	na	na	136	3.5	4.0	9.1
16.01	Foreign Languages and Literature									
	Research	43	229	2.8	14	0.5	229	3.3	3.6	16.3
	Doctoral	20	280	3.2	1	0.0	281	3.2	3.3	18.8
	Comprehensive	39	218	3.9	0	0.0	218	3.9	4.4	14.5
	Baccalaureate	9	151	3.4	na	na	151	3.4	3.4	10.1
16.03	East and Southeast Asian Languages and Literatures									
	Research	9	141	4.2	40	1.9	175	5.8	6.9	13.2
16.04	East European Languages and Literatures									
	Research	13	153	3.8	13	1.5	163	5.0	5.5	11.3
16.05	Germanic Languages and Literatures									
	Research	20	171	2.7	3	0.1	178	2.9	3.0	12.2

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
16.09	Romance Languages and Literatures									
	Research	25	210	3.0	4	0.1	217	3.2	3.6	14.8
	Doctoral	5	277	3.8	8	0.4	284	4.1	5.6	19.2
	Comprehensive	8	292	3.7	2	0.1	292	3.7	4.2	19.5
16.11	Middle Eastern Languages and Literatures									
	Research	5	na	na	na	na	na	na	na	na
16.12	Classical & Ancient Near Eastern Languages & Literatures									
	Research	21	178	2.6	2	0.3	189	2.7	3.3	13.1
19.00	HOME ECONOMICS									
	Research	58	234	2.4	12	0.5	254	3.1	4.0	17.9
	Doctoral	18	356	3.6	10	0.1	371	3.9	4.1	25.4
	Comprehensive	24	244	3.9	21	0.5	254	4.4	5.4	18.0
19.01	Home Economics, General									
	Research	13	252	3.2	3	0.3	254	3.5	3.6	17.0
	Comprehensive	14	285	4.5	0	0.0	285	4.5	5.9	19.0
19.04	Family/Consumer Resource Mngmt									
	Research	7	233	2.8	0	0.0	233	2.8	2.9	15.5
19.05	Food & Nutrition Studies									
	Research	14	141	1.3	37	1.3	216	2.8	4.1	17.7
	Comprehensive	5	838	7.4	130	4.0	726	8.6	8.6	52.7
19.07	Individual & Family Development Studies									
	Research	11	345	2.2	4	0.3	351	2.5	4.2	23.7
19.09	Clothing & Textile Studies									
	Research	9	189	3.1	2	0.1	191	3.2	4.6	12.8
22.00	LAW AND LEGAL STUDIES									
	Research	29	0	0.0	307	4.1	307	4.1	4.2	34.1
	Doctoral	8	208	2.6	319	3.4	333	4.3	4.3	27.1
	Comprehensive	10	193	3.2	207	3.4	220	4.0	4.0	19.3
22.01	Law and Legal Studies									
	Research	29	0	0.0	307	4.1	307	4.1	4.2	34.1
	Doctoral	8	208	2.6	319	3.4	333	4.3	4.3	27.1
	Comprehensive	10	193	3.2	207	3.4	220	4.0	4.0	19.3
23.00	ENGLISH LANGUAGE AND LITERATURE/LETTERS									
	Research	76	245	3.2	7	0.1	255	3.4	3.8	17.4
	Doctoral	32	256	3.6	4	0.1	262	3.7	3.7	17.7
	Comprehensive	69	249	3.9	1	0.0	250	4.0	4.0	16.7
	Baccalaureate	15	198	3.2	8	0.3	199	3.5	3.5	13.3
23.01	English Language & Literature, General									
	Research	51	233	3.5	6	0.2	244	3.7	3.8	17.1
	Doctoral	25	257	3.6	2	0.0	261	3.6	3.8	17.5
	Comprehensive	58	250	4.0	1	0.0	250	3.9	4.0	16.7
	Baccalaureate	12	193	3.0	8	0.3	195	3.1	3.4	13.0
23.03	Comparative Literature									
	Research	8	343	4.2	14	0.6	357	4.8	4.8	24.4
23.04	English Composition									
	Comprehensive	5	230	3.8	na	na	230	3.8	3.8	15.4

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
23.10	Speech and Rhetorical Studies									
	Research	15	288	4.0	9	0.1	294	4.0	4.0	19.9
	Doctoral	6	388	6.4	11	1.6	399	8.0	8.1	27.1
	Comprehensive	6	261	3.9	na	na	261	3.9	3.9	17.4
24.00	LIBERAL ARTS & SCIENCES, GENERAL STUDIES & HUMANITIES									
	Research	20	246	3.4	50	0.0	254	3.5	3.7	17.3
	Doctoral	7	249	4.6	18	0.4	259	4.8	4.9	17.7
	Comprehensive	11	259	4.5	na	na	262	5.0	5.0	17.6
24.01	Liberal Arts and Science, General Studies * Humanities									
	Research	20	246	3.4	50	0.0	254	3.5	3.7	17.3
	Doctoral	7	249	4.6	18	0.4	259	4.8	4.9	17.7
	Comprehensive	11	259	4.5	na	na	262	5.0	5.0	17.6
25.00	LIBRARY SCIENCE									
	Research	14	115	2.2	104	2.6	196	4.3	4.5	17.7
25.01	Library Science/Librarianship									
	Research	14	115	2.2	104	2.6	196	4.3	4.5	17.7
26.00	BIOLOGICAL SCIENCES/LIFE SCIENCES									
	Research	141	204	1.4	17	0.4	220	1.9	3.6	15.7
	Doctoral	29	399	2.8	13	0.3	417	3.1	5.4	28.6
	Comprehensive	62	265	2.5	5	0.2	271	2.7	4.7	18.3
	Baccalaureate	14	185	1.2	11	0.2	188	1.3	4.9	12.6
26.01	Biology, General									
	Research	44	400	2.0	6	0.1	413	2.2	4.0	28.1
	Doctoral	24	401	2.8	14	0.3	421	3.1	5.6	29.0
	Comprehensive	58	275	2.6	4	0.2	281	2.9	4.8	19.0
	Baccalaureate	12	196	1.3	na	na	196	1.3	6.5	13.0
26.02	Biochemistry and Biophysics									
	Research	16	44	0.9	27	0.6	74	2.0	3.2	6.3
26.03	Botany									
	Research	21	59	1.2	15	0.3	73	1.2	2.9	5.6
26.05	Microbiology/Bacteriology									
	Research	15	79	1.6	33	0.6	133	2.6	4.0	11.3
26.06	Miscellaneous Biological Specializations									
	Research	14	166	0.4	43	0.8	208	2.7	3.5	15.8
26.07	Zoology									
	Research	25	201	1.0	11	0.1	165	1.6	2.7	11.6
27.00	MATHEMATICS									
	Research	75	375	2.7	8	0.2	392	3.2	3.6	26.8
	Doctoral	28	392	3.4	4	0.1	402	3.5	4.1	27.3
	Comprehensive	56	349	3.7	1	0.0	356	3.8	3.8	24.1
	Baccalaureate	11	308	3.2	na	na	308	3.2	4.5	20.6
27.01	Mathematics									
	Research	49	418	3.1	2	0.0	421	3.3	3.8	28.2
	Doctoral	25	382	3.4	1	0.0	384	3.5	3.6	25.7
	Comprehensive	55	349	3.7	1	0.0	357	3.8	3.8	24.1
	Baccalaureate	10	294	3.6	na	na	294	3.6	4.5	19.6
27.03	Applied Mathematics									
	Research	5	130	1.4	66	1.9	197	3.3	3.3	16.0

BEST COPY AVAILABLE

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
27.05	Mathematical Statistics									
	Research	21	182	1.2	29	0.5	234	2.9	3.3	17.9
29.00	MILITARY TECHNOLOGIES									
	Comprehensive	7	76	3.0	na	na	76	3.0	3.7	5.1
29.01	Military Technologies									
	Comprehensive	7	76	3.0	na	na	76	3.0	3.7	5.1
30.00	MULTI/INTERDISCIPLINARY STUDIES									
	Research	19	133	1.6	55	0.9	188	2.5	2.4	15.0
	Doctoral	11	198	2.6	6	0.0	203	2.8	3.1	13.8
	Comprehensive	15	301	3.6	47	1.3	223	3.6	3.4	16.0
30.08	Mathematics and Computer Science									
	Comprehensive	5	402	3.9	0	0.0	402	3.9	5.0	26.8
30.99	Multi/Interdisciplinary Studies, Other									
	Comprehensive	5	144	3.0	30	1.3	123	3.0	3.0	8.9
31.00	PARKS, RECREATION, LEISURE & FITNESS STUDIES									
	Research	29	242	3.9	6	0.0	256	4.1	6.4	18.9
	Doctoral	9	239	4.5	2	0.2	244	4.6	7.9	16.5
	Comprehensive	40	218	6.7	6	0.1	220	6.9	7.5	14.8
	Baccalaureate	7	266	12.1	na	na	270	12.1	13.0	18.2
31.01	Parks, Recreation and Leisure Studies									
	Research	6	271	3.5	0	0.0	271	3.5	3.7	18.1
	Comprehensive	5	250	6.3	1	0.0	251	6.3	6.3	16.7
31.05	Health and Physical Education/Fitness									
	Research	19	228	5.3	8	0.2	247	5.0	7.6	17.3
	Doctoral	7	260	4.5	8	0.2	267	4.7	8.6	18.1
	Comprehensive	32	209	6.8	8	0.1	211	7.2	7.9	14.2
	Baccalaureate	7	266	12.1	na	na	270	12.1	13.0	18.2
38.00	PHILOSOPHY AND RELIGION									
	Research	68	337	3.1	2	0.1	341	3.2	3.7	22.9
	Doctoral	31	378	3.8	6	0.1	387	3.9	4.1	26.2
	Comprehensive	60	314	3.8	6	0.3	313	4.0	4.0	21.1
	Baccalaureate	15	202	2.8	na	na	202	2.8	2.9	13.5
38.01	Philosophy									
	Research	49	399	3.1	2	0.1	403	3.2	3.7	27.1
	Doctoral	24	372	3.4	2	0.1	375	3.7	4.3	25.1
	Comprehensive	29	322	4.5	0	0.0	322	4.5	4.5	21.4
	Baccalaureate	8	240	3.1	na	na	240	3.1	3.1	16.0
38.02	Religion/Religious Studies									
	Research	19	230	3.0	1	0.1	231	3.1	3.1	15.4
	Doctoral	7	392	4.1	35	1.2	415	4.9	4.9	28.7
	Comprehensive	18	261	4.1	7	0.3	259	4.1	4.1	17.9
	Baccalaureate	5	168	2.2	na	na	168	2.2	2.2	11.2
38.99	Philosophy and Religion									
	Comprehensive	13	300	3.4	9	0.1	303	3.5	3.5	20.4
40.00	PHYSICAL SCIENCES									
	Research	174	343	1.9	17	0.4	371	2.6	4.6	26.0
	Doctoral	73	303	2.1	8	0.3	312	2.7	5.6	21.2
	Comprehensive	127	306	2.8	2	0.1	307	2.9	5.9	20.5
	Baccalaureate	21	113	1.7	na	na	113	1.7	3.9	7.5
40.01	Physical Sciences, General									
	Comprehensive	10	305	2.5	na	na	305	2.5	4.6	20.3

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
40.02	Astronomy									
	Research	9	565	1.8	13	0.0	578	1.8	3.0	39.1
40.04	Atmospheric Sciences and Meteorology									
	Research	10	258	1.8	20	1.0	296	2.7	2.7	21.4
40.05	Chemistry									
	Research	50	539	2.1	25	0.4	589	3.1	6.6	41.6
	Doctoral	25	315	2.5	10	0.3	333	2.8	6.3	23.0
	Comprehensive	47	344	2.5	0	0.0	344	2.5	6.9	23.0
	Baccalaureate	9	177	1.9	na	na	177	1.9	4.9	11.8
40.06	Geological and Related Sciences									
	Research	45	124	2.3	14	0.4	147	3.0	3.4	10.9
	Doctoral	18	242	1.7	5	0.0	246	1.9	3.3	16.6
	Comprehensive	22	491	3.8	1	0.0	494	3.8	5.1	33.1
40.07	Miscellaneous Physical Sciences									
	Research	8	27	1.4	20	0.3	66	1.6	2.1	6.1
40.08	Physics									
	Research	49	270	1.7	7	0.4	279	2.2	5.3	19.0
	Doctoral	25	347	2.7	2	0.1	352	2.9	5.8	23.7
	Comprehensive	42	225	2.1	2	0.1	226	2.1	5.4	15.1
	Baccalaureate	6	137	1.7	na	na	137	1.7	4.1	9.1
42.00	PSYCHOLOGY									
	Research	52	442	2.3	12	0.3	457	2.6	3.1	31.2
	Doctoral	28	424	2.8	31	0.8	426	3.5	4.1	30.0
	Comprehensive	62	324	3.3	33	0.7	348	3.8	3.9	24.5
	Baccalaureate	11	315	3.5	na	na	315	3.5	3.7	21.0
42.01	Psychology									
	Research	50	453	2.3	12	0.3	468	2.7	3.2	31.9
	Doctoral	25	428	2.8	16	0.6	449	3.7	4.2	30.9
	Comprehensive	58	338	3.3	24	0.6	357	3.7	3.9	24.6
	Baccalaureate	11	315	3.5	na	na	315	3.5	3.7	21.0
43.00	PROTECTIVE SERVICES									
	Research	14	427	3.2	9	0.1	438	3.7	3.7	29.7
	Doctoral	6	538	4.0	27	0.4	554	4.3	4.3	37.7
	Comprehensive	16	220	3.1	18	0.4	229	3.3	3.3	15.6
43.01	Criminal Justice and Corrections									
	Research	14	427	3.2	9	0.1	438	3.7	3.7	29.7
	Doctoral	6	538	4.0	27	0.4	554	4.3	4.3	37.7
	Comprehensive	15	214	3.0	19	0.4	223	3.2	3.3	15.2
44.00	PUBLIC ADMINISTRATION AND SERVICES									
	Research	45	90	1.2	124	1.8	219	3.0	3.2	19.8
	Doctoral	23	203	1.8	123	2.4	277	4.4	4.3	23.1
	Comprehensive	38	177	2.6	46	1.3	196	3.2	3.4	14.5
44.04	Public Administration									
	Research	11	56	0.6	131	2.5	173	2.9	3.1	17.4
	Doctoral	9	60	1.0	132	3.4	192	6.5	6.5	19.3
	Comprehensive	8	173	1.5	88	2.2	142	3.1	3.1	13.4
44.05	Public Policy Analysis									
	Research	9	161	1.7	59	2.2	189	3.3	3.6	14.9
44.07	Social Work									
	Research	25	103	1.3	141	1.5	248	2.8	3.1	22.5
	Doctoral	11	214	2.2	128	1.7	290	4.0	3.5	23.8
	Comprehensive	28	197	2.9	36	0.6	211	3.1	3.6	14.6

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
45.00	SOCIAL SCIENCES AND HISTORY									
	Research	278	395	2.9	13	0.4	412	3.4	3.8	28.3
	Doctoral	122	397	3.5	8	0.3	404	3.9	4.0	27.4
	Comprehensive	209	294	3.3	12	0.4	302	3.6	3.7	20.5
	Baccalaureate	37	254	3.2	5	0.1	255	3.2	3.3	17.0
45.01	Social Sciences, General									
	Doctoral	5	443	3.1	58	1.8	362	3.2	3.2	25.4
	Comprehensive	14	352	3.6	18	0.3	358	3.7	3.4	24.1
45.02	Anthropology									
	Research	38	313	3.0	15	0.5	337	3.8	3.9	23.5
	Doctoral	16	536	3.5	10	0.6	547	4.0	3.9	37.0
	Comprehensive	14	196	3.3	11	0.6	202	3.6	3.6	13.7
45.06	Economics									
	Research	41	509	2.5	11	0.5	537	3.2	4.0	37.1
	Doctoral	17	523	3.7	9	0.2	535	3.9	4.2	36.2
	Comprehensive	24	255	2.5	16	0.6	281	3.2	3.2	19.9
	Baccalaureate	6	188	3.3	na	na	191	3.4	3.4	12.8
45.07	Geography									
	Research	33	240	2.4	8	0.5	258	3.1	4.1	18.0
	Doctoral	11	462	3.6	0	0.0	462	3.6	4.9	30.8
	Comprehensive	18	274	3.2	1	0.2	274	3.3	3.6	18.3
45.08	History									
	Research	51	319	3.1	14	0.5	340	3.6	4.0	23.6
	Doctoral	24	314	3.4	6	0.4	327	3.8	3.8	22.4
	Comprehensive	50	344	3.5	4	0.3	347	3.6	3.7	23.2
	Baccalaureate	9	325	3.0	na	na	326	3.0	3.1	21.8
45.10	Political Science and Government									
	Research	50	372	3.0	9	0.2	384	3.4	3.6	26.2
	Doctoral	22	304	3.0	13	0.7	318	3.6	3.6	21.9
	Comprehensive	42	236	3.1	12	0.5	244	3.5	3.5	16.6
	Baccalaureate	7	183	3.0	na	na	183	3.0	3.0	12.2
45.11	Sociology									
	Research	49	387	3.2	4	0.2	392	3.7	3.7	26.4
	Doctoral	21	422	3.6	4	0.1	427	3.8	3.9	28.7
	Comprehensive	43	281	3.7	3	0.5	283	3.8	3.9	19.0
	Baccalaureate	8	244	3.3	0	0.0	244	3.3	3.3	16.3
45.99	Social Sciences and History, Other									
	Research	5	247	3.5	73	1.4	256	4.6	4.9	19.6
50.00	VISUAL AND PERFORMING ARTS									
	Research	159	173	2.6	9	0.3	185	3.0	3.8	12.6
	Doctoral	68	191	2.9	7	0.4	200	3.4	4.3	13.7
	Comprehensive	147	178	3.7	3	0.2	179	3.7	4.6	12.0
	Baccalaureate	27	146	4.6	na	na	146	4.6	4.7	9.7
50.01	Visual and Performing Arts									
	Research	6	156	4.0	4	0.1	158	4.0	4.1	10.6
	Comprehensive	11	173	2.9	0	0.1	173	2.9	3.6	11.5
	Baccalaureate	5	169	5.5	na	na	169	5.5	5.5	11.3
50.03	Dance									
	Research	10	163	3.7	18	0.7	176	4.2	4.3	12.3
50.04	Design and Applied Arts									
	Research	7	221	1.1	1	0.0	222	1.1	2.9	14.8
	Comprehensive	5	149	3.2	7	0.4	153	3.4	3.7	10.3
50.05	Dramatic/Theater Arts and Stagecraft									
	Research	39	219	2.4	10	0.5	232	2.9	3.8	16.1
	Doctoral	17	205	3.6	6	0.3	214	4.4	4.5	14.7
	Comprehensive	31	209	4.0	4	0.3	210	4.1	4.1	14.0
	Baccalaureate	6	160	6.2	na	na	160	6.2	6.2	10.6

CIP	Discipline/Carneg... Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
50.07	Fine Arts and Art Studies									
	Research	47	191	2.4	7	0.2	204	2.7	3.5	14.2
	Doctoral	23	212	2.8	4	0.2	230	3.0	3.7	15.5
	Comprehensive	44	205	3.5	3	0.3	207	3.6	4.3	13.9
	Baccalaureate	8	184	3.7	na	na	184	3.7	3.7	12.2
50.09	Music									
	Research	46	110	3.0	5	0.2	118	3.3	4.0	8.7
	Doctoral	21	147	2.7	8	0.8	163	3.6	4.4	11.6
	Comprehensive	46	120	3.4	2	0.1	121	3.5	5.3	8.1
	Baccalaureate	8	89	4.6	na	na	89	4.6	5.0	6.0
51.00	HEALTH PROFESSIONS AND RELATED SCIENCES									
	Research	138	121	1.3	80	1.4	212	3.0	3.6	18.2
	Doctoral	60	185	2.2	42	0.9	224	3.0	3.8	17.0
	Comprehensive	96	144	2.5	32	0.9	168	3.1	4.0	12.9
	Baccalaureate	10	143	2.3	11	0.1	149	2.4	4.9	10.2
51.02	Communication Disorders Sciences and Services									
	Research	29	130	1.4	52	1.1	189	2.3	2.6	15.4
	Doctoral	12	201	2.8	72	1.3	290	4.6	4.6	23.3
	Comprehensive	19	172	1.9	49	0.7	190	2.6	3.7	14.3
51.07	Health and Medical Administrative Services									
	Research	6	179	3.1	190	1.5	258	3.4	3.4	22.2
	Comprehensive	9	206	3.8	42	1.2	232	4.2	4.1	16.6
51.10	Health and Medical Laboratory Technologies									
	Research	5	159	6.9	na	na	159	6.9	9.2	10.6
51.16	Nursing									
	Research	30	105	1.1	40	1.0	150	2.2	3.5	12.0
	Doctoral	19	79	1.0	31	0.7	117	1.9	2.9	9.5
	Comprehensive	33	115	2.4	16	0.8	134	2.8	4.3	9.8
51.20	Pharmacy Administration and Pharmaceutics									
	Research	13	188	1.8	177	2.9	365	4.7	5.9	32.2
51.22	Public Health									
	Research	9	45	0.5	66	1.2	105	1.7	1.7	9.9
51.23	Rehabilitation/Therapeutic Services									
	Research	10	209	0.9	88	1.6	307	2.9	3.4	25.9
	Doctoral	5	181	1.2	6	0.2	187	1.4	2.6	12.8
	Comprehensive	8	229	3.0	21	1.1	167	2.7	3.9	11.7
51.24	Veterinary Medicine (D.V.M.)									
	Research	7	27	0.4	452	5.4	473	5.7	7.5	51.6
52.00	BUSINESS MANAGEMENT & ADMINISTRATIVE SERVICE									
	Research	201	347	2.7	42	0.6	398	3.4	3.6	28.0
	Doctoral	87	324	3.2	23	0.4	358	3.7	3.8	25.4
	Comprehensive	186	270	3.5	19	0.4	290	3.9	4.0	20.0
	Baccalaureate	12	245	4.3	na	na	245	4.3	4.3	16.4
52.01	Business									
	Research	17	315	2.0	47	0.7	382	2.7	4.1	28.5
	Doctoral	7	305	2.8	76	0.9	370	3.6	4.4	27.5
	Comprehensive	12	200	3.1	13	0.4	218	3.8	4.2	16.7
	Baccalaureate	5	237	3.1	na	na	237	3.1	3.2	15.8

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
52.02	Business Administration and Management									
	Research	32	367	2.5	73	0.8	461	3.6	3.8	35.6
	Doctoral	15	380	3.1	42	0.6	429	3.7	3.8	28.9
	Comprehensive	40	235	3.2	31	0.6	279	3.6	3.7	18.9
	Baccalaureate	5	281	7.1	na	na	281	7.1	7.1	18.7
52.03	Accounting									
	Research	35	430	2.8	29	0.6	472	3.6	3.7	33.3
	Doctoral	15	313	3.2	17	0.3	375	3.8	4.4	26.3
	Comprehensive	43	287	3.6	11	0.2	304	3.9	4.2	21.1
52.06	Business/Managerial Economics									
	Research	13	464	3.9	6	0.2	477	3.4	3.5	32.4
	Doctoral	5	458	2.6	70	0.5	528	3.1	3.7	38.3
	Comprehensive	16	414	3.4	3	0.1	429	3.7	3.7	29.3
52.08	Financial Management and Services									
	Research	29	305	3.0	32	0.7	349	4.1	4.1	25.2
	Doctoral	11	290	3.5	0	0.0	295	3.5	3.5	19.9
	Comprehensive	21	311	3.8	0	0.0	315	3.9	3.9	21.2
52.09	Hospitality Services Management									
	Research	9	227	2.2	0	0.0	231	2.2	3.0	15.6
	Comprehensive	5	258	4.1	na	na	258	4.1	4.4	17.2
52.10	Human Resources Management									
	Research	11	135	1.7	123	2.1	240	3.4	3.4	20.7
	Comprehensive	5	na	na	163	3.5	195	3.9	3.9	20.2
52.12	Business Information and Data Processing Services									
	Research	5	412	3.5	20	0.4	432	3.9	3.9	29.7
	Doctoral	9	282	3.1	7	0.1	286	3.1	3.1	19.3
	Comprehensive	11	446	4.5	39	0.6	469	4.9	5.1	32.3
52.13	Business Quantitative Methods & Management Science									
	Research	11	393	2.8	28	0.6	421	3.4	6.9	29.3
52.14	Marketing Management and Research									
	Research	30	358	2.7	18	0.2	383	3.2	3.2	26.6
	Doctoral	12	310	4.1	1	0.0	328	3.6	3.6	22.7
	Comprehensive	24	238	3.0	6	0.5	253	3.4	3.5	17.5

BEST COPY AVAILABLE

Delaware Study National Benchmarks—Norms by Carnegie Classification

TABLE FOUR

Normative Number of Student Credit Hours, Organized Class Sections, and FTE Students Taught per Term per FTE Instructional Faculty forAll Faculty Combined (Fall 1997)

CIP	Discipline/Carnegie Classification	N°	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
1.00	AGRICULTURAL BUSINESS AND PRODUCTION									
	Research	34	190	1.8	31	0.6	220	2.4	3.2	16.0
1.01	Agricultural Business and Management									
	Research	21	220	1.8	34	0.7	269	2.4	3.0	20.4
2.00	AGRICULTURAL SCIENCES									
	Research	69	165	1.6	27	0.5	197	2.2	3.4	14.3
	Comprehensive	9	200	3.0	14	0.8	206	3.4	5.3	14.0
2.01	Agriculture/Agricultural Sciences									
	Comprehensive	7	187	3.1	16	0.8	191	3.3	5.0	13.0
2.02	Animal Sciences									
	Research	24	186	1.8	20	0.4	206	2.3	3.6	14.6
2.03	Food Sciences and Technology									
	Research	12	155	1.5	47	0.6	212	2.3	3.2	16.7
2.04	Plant Sciences									
	Research	24	155	1.6	25	0.5	182	2.1	3.6	13.3
2.05	Soil Sciences									
	Research	6	145	0.8	62	0.7	208	1.5	3.3	16.6
3.00	CONSERVATION & RENEWABLE \ NATURAL RESOURCES									
	Research	40	164	1.5	41	0.7	214	2.3	3.1	15.9
	Doctoral	9	112	2.1	20	0.6	154	2.5	2.8	10.8
	Comprehensive	5	360	7.5	na	na	368	7.7	9.9	24.9
3.01	Natural Resources Conservation									
	Research	9	181	1.3	23	0.8	210	2.4	3.1	15.3
3.05	Forestry and Related Sciences									
	Research	15	153	1.5	30	0.5	210	2.1	3.1	14.5
3.06	Wildlife and Wildlands Management									
	Research	5	334	1.4	50	0.6	385	2.0	3.3	27.9
4.00	ARCHITECTURE AND RELATED PROGRAMS									
	Research	63	128	1.1	36	0.8	158	1.9	2.7	12.4
	Doctoral	5	233	2.6	66	1.1	226	2.8	2.9	16.8
4.02	Architecture									
	Research	27	159	1.2	29	0.6	187	1.6	2.7	13.3
4.03	City/Urban, Community and Regional Planning									
	Research	10	62	0.7	85	2.1	134	2.9	3.2	12.7
4.06	Landscape Architecture									
	Research	14	131	1.1	23	0.7	156	1.6	2.5	11.6

N° = number of institutions responding

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
5.00	AREA, ETHNIC AND CULTURAL STUDIES									
	Research	40	173	2.1	19	0.4	187	2.4	3.0	13.3
	Doctoral	13	223	2.6	10	0.3	229	2.8	3.2	15.5
	Comprehensive	10	211	3.1	na	na	217	3.3	3.3	14.8
5.01	Area Studies									
	Research	16	123	1.9	27	0.6	137	2.4	3.0	10.5
5.02	Ethnic and Cultural Studies									
	Research	23	221	2.4	10	0.3	229	2.7	3.1	15.6
	Doctoral	11	214	3.0	9	0.3	218	3.2	3.4	14.7
	Comprehensive	8	236	3.4	na	na	236	3.4	3.4	15.8
9.00	COMMUNICATIONS									
	Research	73	200	2.0	15	0.4	217	2.4	3.0	15.1
	Doctoral	25	202	2.5	14	0.4	214	2.9	3.0	15.8
	Comprehensive	59	210	3.5	14	0.4	220	3.6	3.9	15.0
	Baccalaureate	8	178	3.5	na	na	178	3.5	3.9	11.9
9.01	Communications, General									
	Research	27	225	2.3	12	0.3	231	2.6	3.1	15.9
	Doctoral	13	252	3.0	12	0.3	263	3.3	3.4	18.0
	Comprehensive	40	234	3.4	14	0.4	242	3.6	3.8	16.5
	Baccalaureate	5	183	3.3	na	na	183	3.3	4.1	12.2
9.04	Journalism and Mass Communications									
	Research	32	180	1.9	12	0.3	189	2.3	2.9	13.2
	Doctoral	7	201	2.3	17	0.5	213	2.7	2.9	14.7
	Comprehensive	12	166	3.7	8	0.5	168	3.9	3.9	11.3
9.07	Radio and Television Broadcasting									
	Research	7	214	1.8	21	0.6	234	2.3	3.2	16.6
	Comprehensive	5	204	3.6	7	0.1	207	3.7	3.8	13.9
11.00	COMPUTER AND INFORMATION SCIENCES									
	Research	43	168	1.2	30	0.5	202	1.7	2.6	14.8
	Doctoral	22	205	1.9	25	0.5	234	2.5	3.0	16.8
	Comprehensive	40	229	3.4	19	0.5	247	3.7	3.9	17.1
	Baccalaureate	8	231	3.7	na	na	231	3.7	4.0	15.4
11.01	Computer and Information Sciences, General									
	Research	36	176	1.2	29	0.4	203	1.6	2.6	14.7
	Doctoral	18	198	1.9	24	0.5	226	2.3	2.7	16.4
	Comprehensive	26	225	3.3	22	0.5	239	3.5	4.0	16.5
	Baccalaureate	7	241	3.8	na	na	241	3.8	4.0	16.1
11.07	Computer Science									
	Comprehensive	13	236	3.8	12	0.6	266	4.1	4.2	18.3
13.00	EDUCATION									
	Research	156	98	1.2	59	1.1	156	2.4	2.8	13.0
	Doctoral	71	126	1.5	60	1.4	176	3.0	3.3	14.5
	Comprehensive	145	143	2.3	50	1.1	188	3.6	3.8	15.0
	Baccalaureate	18	171	3.5	22	0.8	188	3.8	4.3	13.3
13.01	Education, General									
	Research	18	100	1.6	58	1.4	157	3.0	3.1	12.7
	Doctoral	8	115	1.1	67	1.4	159	2.3	2.3	13.2
	Comprehensive	28	138	2.3	45	1.1	198	3.4	3.5	15.6
	Baccalaureate	7	144	3.2	20	0.7	156	3.7	3.9	10.9
13.03	Curriculum and Instruction									
	Research	23	119	1.2	41	0.8	151	2.1	2.5	12.0
	Doctoral	11	150	2.1	43	1.1	196	3.2	3.4	15.1
	Comprehensive	12	167	2.7	43	1.0	211	3.7	4.0	16.0

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
13.04	Education Administration & Supervision									
	Research	23	36	0.4	81	1.4	118	2.0	2.3	11.1
	Doctoral	12	86	1.0	79	2.3	145	3.2	3.4	13.2
	Comprehensive	16	81	1.4	85	1.7	145	2.8	3.2	13.5
13.06	Educational Evaluation, Research and Statistics									
	Research	7	85	1.4	85	1.7	178	2.8	3.0	15.1
13.08	Educational Psychology									
	Research	13	91	0.9	62	1.2	147	2.6	2.8	12.9
13.09	Social and Philosophical Foundations of Education									
	Research	5	120	1.7	43	1.4	164	3.0	3.2	12.8
13.10	Special Education									
	Research	16	100	1.1	58	0.9	155	2.1	2.6	12.7
	Doctoral	8	120	1.4	79	1.2	199	2.7	2.9	16.8
	Comprehensive	21	127	2.6	42	1.1	161	3.5	3.7	12.3
13.11	Student Counseling and Personnel Services									
	Research	12	77	0.8	76	1.7	147	2.7	3.0	13.2
	Doctoral	7	38	0.4	111	2.5	133	2.7	2.9	13.8
	Comprehensive	14	57	1.4	124	2.4	183	3.8	4.0	17.7
13.12	General Teacher Education									
	Research	8	136	1.6	44	0.8	188	2.3	2.5	14.9
	Doctoral	6	144	1.3	54	1.1	198	2.4	2.6	15.6
	Comprehensive	22	162	2.2	39	0.9	206	3.3	3.3	15.3
13.13	Teacher Education, Specific Academic & Vocational Programs									
	Research	21	155	2.2	34	0.6	187	2.8	3.9	14.5
	Doctoral	10	179	2.7	22	0.5	201	3.7	4.4	14.4
	Comprehensive	26	187	4.0	10	0.4	204	4.4	4.9	14.4
14.00	ENGINEERING									
	Research	290	97	1.2	28	0.5	125	1.7	2.4	9.6
	Doctoral	74	106	1.4	22	0.7	128	2.1	2.9	9.5
	Comprehensive	50	135	2.3	16	0.7	144	2.7	3.4	10.3
14.01	Engineering, General									
	Research	8	198	2.5	19	0.6	183	2.6	3.5	11.2
	Doctoral	5	140	2.3	na	na	140	2.3	3.0	9.3
	Comprehensive	7	124	1.8	23	0.6	144	2.4	3.8	10.5
14.02	Aerospace, Aeronautical & Astronautical Engineering									
	Research	10	79	0.9	24	0.6	113	1.6	1.9	8.6
14.03	Agricultural Engineering									
	Research	18	112	1.7	21	0.3	138	2.1	3.7	10.4
14.05	Bioengineering and Biomedical Engineering									
	Research	9	32	0.7	61	1.3	101	2.0	2.2	9.4
14.07	Chemical Engineering									
	Research	37	96	1.0	28	0.4	126	1.5	2.1	9.5
	Doctoral	6	115	1.2	16	0.4	131	1.6	2.3	9.4
	Comprehensive	7	171	2.5	14	0.5	178	2.8	3.1	12.2
14.08	Civil Engineering									
	Research	41	103	1.2	25	0.6	130	1.8	2.3	9.6
	Doctoral	10	104	1.5	20	0.8	124	2.2	2.8	9.2
	Comprehensive	8	138	2.3	15	0.6	137	2.8	3.7	9.6

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
14.09	Computer Engineering									
	Research	5	127	1.0	21	0.3	148	1.3	2.1	10.8
14.10	Electrical, Electronics & Comm. Engineering									
	Research	43	102	1.2	28	0.5	133	1.7	2.5	10.1
	Doctoral	15	115	1.3	23	0.6	141	2.0	3.0	10.6
	Comprehensive	10	134	2.3	13	0.4	143	2.7	3.8	10.0
14.17	Industrial/Manufacturing Engineering									
	Research	23	88	1.0	32	0.6	124	1.6	2.2	9.7
	Doctoral	6	108	1.7	31	1.1	139	2.8	3.0	10.7
14.18	Materials Engineering									
	Research	15	74	1.1	38	0.7	113	1.8	2.5	9.2
14.19	Mechanical Engineering									
	Research	42	96	1.2	23	0.4	118	1.7	2.3	9.2
	Doctoral	14	104	1.5	17	0.6	124	2.0	2.7	9.1
	Comprehensive	7	138	2.2	9	0.5	145	2.6	3.2	10.0
14.23	Nuclear Engineering									
	Research	5	50	1.3	35	1.0	86	2.4	2.8	7.3
14.25	Petroleum Engineering									
	Research	5	70	1.2	25	0.5	95	1.7	2.0	7.4
14.99	Engineering, Other									
	Research	5	207	2.1	16	0.3	216	2.3	4.6	14.8
15.00	ENGINEERING-RELATED TECHNOLOGIES									
	Research	11	186	3.1	48	1.0	170	3.1	4.6	12.2
	Doctoral	9	146	3.5	22	0.8	161	4.0	4.4	11.4
	Comprehensive	28	163	3.6	8	0.3	167	3.8	4.9	11.4
15.06	Industrial Production Technologies									
	Comprehensive	11	176	3.4	8	0.3	180	3.6	4.4	12.2
15.99	Engineering-Related Technologies, Other									
	Comprehensive	5	203	3.7	18	0.6	214	4.0	5.3	14.8
16.00	FOREIGN LANGUAGES AND LITERATURES									
	Research	141	153	2.3	9	0.3	162	2.6	2.9	11.1
	Doctoral	32	185	2.8	8	0.3	191	2.9	3.3	12.9
	Comprehensive	54	200	3.7	6	0.2	201	3.7	3.9	13.4
	Baccalaureate	18	167	3.4	na	na	167	3.4	3.5	11.1
16.01	Foreign Languages and Literature									
	Research	43	167	2.5	13	0.4	177	2.8	3.0	12.3
	Doctoral	20	203	2.7	6	0.2	207	2.8	3.1	14.0
	Comprehensive	39	201	3.8	4	0.2	201	3.8	3.9	13.5
	Baccalaureate	9	155	3.5	na	na	155	3.5	3.5	10.3
16.03	East and Southeast Asian Languages and Literatures									
	Research	9	117	1.8	8	0.4	124	2.2	2.6	8.5
16.04	East European Languages and Literatures									
	Research	13	101	2.0	10	0.6	111	2.6	3.0	7.8
16.05	Germanic Languages and Literatures									
	Research	20	113	2.2	11	0.4	123	2.6	2.7	8.7

BEST COPY AVAILABLE

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
16.09	Romance Languages and Literatures									
	Research	25	178	2.6	8	0.2	186	2.8	2.9	12.8
	Doctoral	5	181	2.4	9	0.3	188	2.7	3.3	12.8
	Comprehensive	8	232	3.7	11	0.3	234	3.8	4.0	15.7
16.11	Middle Eastern Languages and Literatures									
	Research	5	125	1.8	9	0.4	134	2.2	2.3	9.3
16.12	Classical & Ancient Near Eastern Languages & Literatures									
	Research	21	184	2.2	8	0.3	192	2.5	2.8	13.9
19.00	HOME ECONOMICS									
	Research	58	209	1.6	13	0.4	219	2.0	2.9	15.4
	Doctoral	18	202	2.2	19	0.6	219	2.8	3.3	15.4
	Comprehensive	24	241	3.4	14	0.5	253	3.6	4.2	17.5
19.01	Home Economics, General									
	Research	13	196	1.9	11	0.3	204	2.2	3.0	14.0
	Comprehensive	14	253	3.6	8	0.5	260	3.8	4.5	17.6
19.04	Family/Consumer Resource Mngmt									
	Research	7	237	1.6	10	0.3	246	2.2	2.4	16.8
19.05	Food & Nutrition Studies									
	Research	14	222	1.1	17	0.5	242	2.0	2.9	17.0
	Comprehensive	5	272	3.1	58	1.2	263	3.4	4.1	19.6
19.07	Individual & Family Development Studies									
	Research	11	223	1.4	21	0.5	247	1.9	3.2	17.5
19.09	Clothing & Textile Studies									
	Research	9	186	1.6	7	0.2	192	2.3	3.1	13.1
22.00	LAW AND LEGAL STUDIES									
	Research	29	3	0.1	233	2.3	233	2.3	2.2	25.5
	Doctoral	8	159	1.8	220	2.0	232	2.2	2.5	24.1
	Comprehensive	10	194	2.6	213	2.3	246	3.0	3.0	19.6
22.01	Law and Legal Studies									
	Research	29	3	0.1	233	2.3	233	2.3	2.2	25.5
	Doctoral	8	159	1.8	220	2.0	232	2.2	2.5	24.1
	Comprehensive	10	194	2.6	213	2.3	246	3.0	3.0	19.6
23.00	ENGLISH LANGUAGE AND LITERATURE/LETTERS									
	Research	76	190	2.3	11	0.2	198	2.6	2.8	13.7
	Doctoral	32	197	2.5	12	0.4	208	2.9	3.2	14.4
	Comprehensive	69	238	3.5	6	0.2	242	3.6	3.7	16.3
	Baccalaureate	15	200	3.3	6	0.2	201	3.3	3.6	13.4
23.01	English Language & Literature, General									
	Research	51	182	2.4	10	0.2	193	2.6	2.8	13.2
	Doctoral	25	198	2.7	11	0.3	209	2.9	3.2	14.4
	Comprehensive	58	237	3.4	5	0.2	241	3.6	3.7	16.2
	Baccalaureate	12	200	3.2	6	0.2	201	3.2	3.5	13.5
23.03	Comparative Literature									
	Research	8	184	1.5	18	0.3	181	1.9	2.8	12.8
23.04	English Composition									
	Comprehensive	5	222	3.5	na	na	222	3.5	3.5	14.8

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
23.10	Speech and Rhetorical Studies									
	Research	15	230	2.8	13	0.3	239	3.1	3.5	16.4
	Doctoral	6	198	2.4	22	0.6	217	3.0	3.5	15.3
	Comprehensive	6	266	3.8	na	na	268	3.9	3.9	17.9
24.00	LIBERAL ARTS & SCIENCES, GENERAL STUDIES & HUMANITIES									
	Research	20	216	2.5	7	0.2	219	2.6	3.3	14.7
	Doctoral	7	178	3.8	4	0.2	180	4.0	4.0	12.1
	Comprehensive	11	217	3.6	49	2.6	226	4.1	4.2	15.4
24.01	Liberal Arts and Science, General Studies * Humanities									
	Research	20	216	2.5	7	0.2	219	2.6	3.3	14.7
	Doctoral	7	178	3.8	4	0.2	180	4.0	4.0	12.1
	Comprehensive	11	217	3.6	49	2.6	226	4.1	4.2	15.4
25.00	LIBRARY SCIENCE									
	Research	14	42	0.7	113	1.9	151	2.2	2.3	15.1
25.01	Library Science/Librarianship									
	Research	14	42	0.7	113	1.9	151	2.2	2.3	15.1
26.00	BIOLOGICAL SCIENCES/ LIFE SCIENCES									
	Research	141	153	0.9	27	0.5	188	1.3	2.4	13.5
	Doctoral	29	206	1.3	13	0.5	221	1.8	3.6	15.9
	Comprehensive	62	241	2.4	8	0.4	248	2.7	4.4	16.8
	Baccalaureate	14	220	2.2	5	0.1	220	2.2	4.4	14.7
26.01	Biology, General									
	Research	44	199	0.9	12	0.3	212	1.2	2.4	14.6
	Doctoral	24	212	1.4	14	0.4	227	1.8	3.3	16.3
	Comprehensive	58	243	2.4	8	0.4	249	2.7	4.6	16.9
	Baccalaureate	12	204	2.1	na	na	204	2.2	4.5	13.6
26.02	Biochemistry and Biophysics									
	Research	16	107	0.5	35	0.5	147	1.1	1.6	12.6
26.03	Botany									
	Research	21	139	0.9	30	0.6	172	1.5	2.9	13.0
26.05	Microbiology/Bacteriology									
	Research	15	124	0.8	18	0.3	144	1.3	2.1	10.5
26.06	Miscellaneous Biological Specializations									
	Research	14	210	0.7	86	0.7	250	1.6	2.0	20.5
26.07	Zoology									
	Research	25	136	0.9	22	0.5	162	1.5	2.5	12.0
27.00	MATHEMATICS									
	Research	75	225	1.7	17	0.4	244	2.2	2.6	17.3
	Doctoral	28	263	2.3	11	0.3	278	2.7	3.0	19.2
	Comprehensive	56	268	3.4	5	0.2	273	3.5	3.6	18.4
	Baccalaureate	11	258	3.2	na	na	258	3.2	3.7	17.2
27.01	Mathematics									
	Research	49	254	2.0	8	0.3	263	2.3	2.7	17.9
	Doctoral	25	270	2.3	8	0.3	279	2.7	2.9	19.0
	Comprehensive	55	269	3.4	5	0.2	274	3.5	3.6	18.5
	Baccalaureate	10	245	3.1	na	na	245	3.1	3.6	16.3
27.03	Applied Mathematics									
	Research	5	266	1.4	79	1.3	345	2.7	2.8	21.2

BEST COPY AVAILABLE

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
27.05	Mathematical Statistics									
	Research	21	166	1.0	36	0.7	214	1.9	2.8	16.4
29.00	MILITARY TECHNOLOGIES									
	Comprehensive	7	68	2.8	na	na	68	2.8	3.3	4.5
29.01	Military Technologies									
	Comprehensive	7	68	2.8	na	na	68	2.8	3.3	4.5
30.00	MULTI/INTERDISCIPLINARY STUDIES									
	Research	19	99	1.0	47	1.0	139	2.0	2.7	11.3
	Doctoral	11	180	3.4	25	1.1	182	3.8	3.9	12.9
	Comprehensive	15	194	3.3	62	1.3	184	3.3	3.4	13.6
30.08	Mathematics and Computer Science									
	Comprehensive	5	255	3.8	5	0.4	257	4.0	4.9	17.2
30.99	Multi/Interdisciplinary Studies, Other									
	Comprehensive	5	134	2.4	27	0.8	118	2.3	2.3	8.4
31.00	PARKS, RECREATION, LEISURE & FITNESS STUDIES									
	Research	29	211	2.9	17	0.3	227	3.3	4.6	16.6
	Doctoral	9	202	2.6	21	0.5	221	3.0	5.8	15.5
	Comprehensive	40	211	5.1	9	0.3	216	5.3	5.8	14.6
	Baccalaureate	7	181	5.7	na	na	184	5.7	6.9	12.4
31.01	Parks, Recreation and Leisure Studies									
	Research	6	248	2.2	22	0.5	270	2.6	3.6	19.0
	Comprehensive	5	249	4.0	8	0.3	254	4.1	4.6	17.1
31.05	Health and Physical Education/Fitness									
	Research	19	213	2.8	17	0.3	228	3.2	4.8	15.9
	Doctoral	7	198	3.2	23	0.5	218	3.6	6.4	15.4
	Comprehensive	32	200	5.3	9	0.3	206	5.5	6.0	14.0
	Baccalaureate	7	181	5.7	na	na	184	5.7	6.9	12.4
38.00	PHILOSOPHY AND RELIGION									
	Research	68	240	2.0	10	0.4	252	2.2	2.7	17.2
	Doctoral	31	243	2.5	12	0.4	245	2.7	2.8	16.3
	Comprehensive	60	277	3.3	12	0.4	275	3.5	3.5	18.6
	Baccalaureate	15	218	3.1	25	0.4	222	3.1	3.2	15.0
38.01	Philosophy									
	Research	49	239	1.9	10	0.3	249	2.3	2.6	17.0
	Doctoral	24	237	2.6	10	0.4	244	2.8	2.9	16.6
	Comprehensive	29	296	3.4	6	0.1	297	3.4	3.5	19.8
	Baccalaureate	8	203	3.2	na	na	203	3.2	3.2	13.5
38.02	Religion/Religious Studies									
	Research	19	255	2.0	11	0.6	265	2.4	2.9	18.1
	Doctoral	7	240	2.1	20	0.6	254	2.6	2.6	17.6
	Comprehensive	18	223	3.3	13	0.5	227	3.6	3.6	15.8
	Baccalaureate	5	197	2.6	25	0.4	207	2.8	2.8	14.3
38.99	Philosophy and Religion									
	Comprehensive	13	303	3.4	12	0.3	307	3.5	3.5	20.7
40.00	PHYSICAL SCIENCES									
	Research	174	169	1.0	16	0.4	185	1.3	2.8	13.0
	Doctoral	73	208	1.3	11	0.4	220	1.8	3.4	15.2
	Comprehensive	127	214	2.4	6	0.3	217	2.6	4.2	14.5
	Baccalaureate	21	158	2.1	3	0.2	159	2.2	3.8	10.6
40.01	Physical Sciences, General									
	Comprehensive	10	282	3.0	na	na	283	3.0	4.6	18.9

BEST COPY AVAILABLE

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
40.02	Astronomy									
	Research	9	253	1.2	13	0.3	266	1.5	2.8	18.3
40.04	Atmospheric Sciences and Meteorology									
	Research	10	122	1.2	32	0.8	159	2.1	3.0	12.3
40.05	Chemistry									
	Research	50	192	0.6	18	0.3	213	1.1	2.8	15.0
	Doctoral	25	223	1.2	11	0.4	238	1.7	3.3	17.0
	Comprehensive	47	212	2.2	6	0.3	215	2.3	4.3	14.4
	Baccalaureate	9	151	2.0	na	na	151	2.0	3.7	10.1
40.06	Geological and Related Sciences									
	Research	45	164	1.2	13	0.4	177	1.6	2.8	12.4
	Doctoral	18	204	1.5	12	0.5	227	2.2	3.4	15.6
	Comprehensive	22	217	2.5	6	0.2	220	2.6	3.9	14.8
40.07	Miscellaneous Physical Sciences									
	Research	8	74	0.7	30	0.6	108	2.0	2.3	8.7
40.08	Physics									
	Research	49	150	1.0	12	0.3	161	1.3	2.8	11.2
	Doctoral	25	199	1.4	6	0.3	208	1.8	3.3	14.2
	Comprehensive	42	214	2.4	5	0.4	216	2.5	4.3	14.5
	Baccalaureate	6	141	2.1	na	na	142	2.2	3.5	9.5
42.00	PSYCHOLOGY									
	Research	52	251	1.2	20	0.4	266	1.7	2.3	18.7
	Doctoral	28	239	1.7	27	0.8	246	2.2	2.5	17.8
	Comprehensive	62	271	2.8	31	0.9	288	3.5	3.7	20.4
	Baccalaureate	11	249	2.9	na	na	255	3.1	3.7	17.3
42.01	Psychology									
	Research	50	257	1.2	19	0.4	275	1.7	2.3	19.0
	Doctoral	25	238	1.7	24	0.7	255	2.4	2.6	18.1
	Comprehensive	58	282	2.9	27	0.8	298	3.4	3.6	20.7
	Baccalaureate	11	249	2.9	na	na	255	3.1	3.7	17.3
43.00	PROTECTIVE SERVICES									
	Research	14	265	2.0	20	0.4	281	2.4	2.6	19.5
	Doctoral	6	265	2.0	31	0.8	286	2.5	2.6	20.0
	Comprehensive	16	287	3.2	24	0.6	297	3.5	3.4	20.3
43.01	Criminal Justice and Corrections									
	Research	14	265	2.0	20	0.4	281	2.4	2.6	19.5
	Doctoral	6	265	2.0	31	0.8	286	2.5	2.6	20.0
	Comprehensive	15	290	3.2	27	0.7	300	3.5	3.6	20.5
44.00	PUBLIC ADMINISTRATION AND SERVICES									
	Research	45	62	0.7	91	1.5	149	2.1	2.3	14.1
	Doctoral	23	95	1.1	80	1.6	152	2.4	2.5	13.7
	Comprehensive	38	155	2.5	55	1.4	179	3.0	3.1	13.1
44.04	Public Administration									
	Research	11	19	0.5	65	1.1	92	1.7	1.8	10.6
	Doctoral	9	58	0.9	75	1.7	121	2.5	2.6	11.4
	Comprehensive	8	144	1.8	74	2.0	123	3.1	3.1	11.5
44.05	Public Policy Analysis									
	Research	9	107	1.0	62	1.9	155	2.5	2.6	13.6
44.07	Social Work									
	Research	25	73	0.8	114	1.5	172	2.2	2.3	15.8
	Doctoral	11	114	1.6	107	1.6	177	2.3	2.6	15.8
	Comprehensive	28	170	2.6	49	1.1	198	3.1	3.1	13.9

BEST COPY AVAILABLE

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
45.00	SOCIAL SCIENCES AND HISTORY									
	Research	278	231	1.5	17	0.4	248	2.0	2.5	17.3
	Doctoral	122	240	2.1	19	0.6	251	2.6	2.7	17.6
	Comprehensive	209	282	3.3	13	0.5	289	3.5	3.5	19.9
	Baccalaureate	37	227	3.1	6	0.3	223	3.2	3.3	15.0
45.01	Social Sciences, General									
	Doctoral	5	339	2.6	66	1.2	297	2.5	2.5	21.0
	Comprehensive	14	329	3.7	11	0.7	332	3.5	3.6	22.3
45.02	Anthropology									
	Research	38	214	1.6	20	0.4	238	2.0	2.7	16.7
	Doctoral	16	235	1.8	22	0.6	254	2.3	2.6	18.7
	Comprehensive	14	289	3.4	18	0.7	295	3.7	3.8	20.0
45.06	Economics									
	Research	41	254	1.2	19	0.4	274	1.8	2.4	19.2
	Doctoral	17	222	1.7	20	0.6	241	2.3	2.5	16.9
	Comprehensive	24	311	3.2	19	0.4	324	3.5	3.6	22.2
	Baccalaureate	6	189	3.1	na	na	191	3.2	3.2	12.8
45.07	Geography									
	Research	33	222	1.4	15	0.4	238	1.8	2.5	16.6
	Doctoral	11	285	2.2	18	0.7	299	2.8	3.4	20.6
	Comprehensive	18	334	3.3	11	0.5	343	3.5	3.9	23.2
45.08	History									
	Research	51	229	1.7	14	0.3	244	2.0	2.6	17.0
	Doctoral	24	239	2.3	16	0.6	246	2.7	2.8	17.1
	Comprehensive	50	276	3.3	9	0.4	280	3.5	3.5	18.8
	Baccalaureate	9	223	3.2	na	na	224	3.2	3.3	15.0
45.10	Political Science and Government									
	Research	50	195	1.5	16	0.4	212	2.0	2.4	14.9
	Doctoral	22	187	2.0	21	0.7	207	2.6	2.7	14.7
	Comprehensive	42	232	3.2	14	0.5	240	3.5	3.5	16.3
	Baccalaureate	7	193	3.0	na	na	194	3.0	3.1	13.0
45.11	Sociology									
	Research	49	275	1.7	14	0.3	289	2.1	2.4	19.9
	Doctoral	21	282	2.3	16	0.5	297	2.7	2.8	19.9
	Comprehensive	43	303	3.3	11	0.3	306	3.4	3.4	20.5
	Baccalaureate	8	243	3.1	18	0.3	222	3.2	3.3	15.1
45.99	Social Sciences and History, Other									
	Research	5	224	2.4	42	0.7	213	3.0	3.4	15.7
50.00	VISUAL AND PERFORMING ARTS									
	Research	159	142	2.0	12	0.4	152	2.3	3.1	10.6
	Doctoral	68	143	2.4	11	0.5	154	2.9	3.6	10.8
	Comprehensive	147	168	3.6	4	0.3	168	3.7	4.2	11.3
	Baccalaureate	27	124	3.9	na	na	124	3.9	3.9	8.2
50.01	Visual and Performing Arts									
	Research	6	153	2.6	7	0.1	157	2.7	2.9	10.6
	Comprehensive	11	176	3.9	4	0.2	178	4.0	4.5	11.9
	Baccalaureate	5	155	6.0	na	na	155	6.0	6.2	10.3
50.03	Dance									
	Research	10	111	2.3	8	0.4	117	2.6	3.0	8.1
50.04	Design and Applied Arts									
	Research	7	197	1.7	9	0.2	206	1.9	3.6	14.1
	Comprehensive	5	151	3.6	9	0.3	155	3.7	4.3	10.5

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
50.05	Dramatic/Theater Arts and Stagecraft									
	Research	39	142	1.9	13	0.5	154	2.3	3.0	10.8
	Doctoral	17	160	2.6	15	0.7	175	3.3	3.7	12.3
	Comprehensive	31	188	3.6	3	0.1	188	3.6	3.9	12.5
	Baccalaureate	6	116	3.0	na	na	116	3.0	3.0	7.8
50.07	Fine Arts and Art Studies									
	Research	47	158	1.8	11	0.3	171	2.1	3.1	11.8
	Doctoral	23	168	2.2	9	0.3	183	2.5	3.5	12.7
	Comprehensive	44	193	3.6	5	0.5	195	3.8	4.2	13.1
	Baccalaureate	8	137	3.8	na	na	137	3.8	4.1	9.2
50.09	Music									
	Research	46	117	2.0	11	0.4	127	2.4	3.0	9.0
	Doctoral	21	103	2.4	12	0.6	114	3.0	3.9	8.1
	Comprehensive	46	130	3.6	3	0.3	132	3.8	4.9	8.9
	Baccalaureate	8	101	4.6	na	na	101	4.6	4.5	6.7
51.00	HEALTH PROFESSIONS AND RELATED SCIENCES									
	Research	138	95	0.8	51	0.8	138	1.6	2.2	11.0
	Doctoral	60	127	1.5	41	0.8	154	2.0	2.6	12.2
	Comprehensive	96	134	2.0	35	0.7	155	2.5	3.0	11.4
	Baccalaureate	10	101	1.6	22	0.5	111	1.8	3.1	7.9
51.02	Communication Disorders Sciences and Services									
	Research	29	112	0.9	51	1.1	166	2.1	2.4	13.5
	Doctoral	12	147	1.6	56	1.2	190	2.9	2.8	15.2
	Comprehensive	19	124	1.7	57	1.3	169	2.9	3.3	13.3
51.07	Health and Medical Administrative Services									
	Research	6	138	2.0	95	1.0	155	2.0	2.5	13.2
	Comprehensive	9	152	3.1	31	1.1	169	3.7	3.9	12.0
51.10	Health and Medical Laboratory Technologies									
	Research	5	122	3.4	na	na	123	3.7	4.9	8.3
51.16	Nursing									
	Research	30	84	0.7	25	0.6	110	1.3	2.2	8.4
	Doctoral	19	93	1.2	28	0.5	125	1.7	2.3	9.6
	Comprehensive	33	112	1.8	14	0.5	125	2.1	2.8	8.7
51.20	Pharmacy Administration and Pharmaceutics									
	Research	13	106	0.6	45	0.6	157	1.2	1.9	12.7
51.22	Public Health									
	Research	9	31	0.2	62	1.1	84	1.4	1.7	9.3
51.23	Rehabilitation/Therapeutic Services									
	Research	10	126	1.0	94	1.0	178	1.9	2.9	16.9
	Doctoral	5	132	0.8	77	0.7	183	1.4	2.2	15.6
	Comprehensive	8	171	1.8	99	0.9	177	1.8	2.4	14.0
51.24	Veterinary Medicine (D.V.M.)									
	Research	7	3	0.0	101	0.9	104	0.9	1.2	11.4
52.00	BUSINESS MANAGEMENT & ADMINISTRATIVE SERVICE									
	Research	201	223	1.6	42	0.6	262	2.2	2.4	19.4
	Doctoral	87	233	2.2	33	0.5	265	2.7	2.8	19.3
	Comprehensive	186	232	2.8	28	0.5	250	3.2	3.3	17.9
	Baccalaureate	12	240	3.9	na	na	240	3.9	4.2	16.0

74 BEST COPY AVAILABLE

CIP	Discipline/Carnegie Classification	N	UG SCH	UG OC Sections (Exc. Lab)	GR SCH	GR OC Sections (Exc. Lab)	Total SCH	Total OC Sections (Exc. Lab)	Total OC Sections (Inc. Lab)	FTE Students Taught
52.01	Business									
	Research	17	225	1.4	52	0.7	282	2.2	2.8	20.9
	Doctoral	7	211	1.7	62	0.9	264	2.5	2.6	20.0
	Comprehensive	12	226	3.0	31	0.6	251	3.5	3.7	18.4
	Baccalaureate	5	309	3.4	na	na	309	3.4	3.6	20.6
52.02	Business Administration and Management									
	Research	32	221	1.6	55	0.7	277	2.3	2.4	21.3
	Doctoral	15	238	2.3	38	0.5	270	2.6	3.0	19.7
	Comprehensive	40	229	2.8	32	0.6	250	3.3	3.3	18.3
	Baccalaureate	5	195	4.5	na	na	195	4.5	4.5	13.0
52.03	Accounting									
	Research	35	234	1.8	33	0.5	270	2.2	2.5	19.6
	Doctoral	15	216	2.2	35	0.5	250	2.7	2.9	18.7
	Comprehensive	43	230	2.8	20	0.4	247	3.1	3.3	17.3
52.06	Business/Managerial Economics									
	Research	13	249	1.5	29	0.6	276	2.2	2.2	19.6
	Doctoral	5	265	1.7	39	0.6	303	2.3	2.5	21.9
	Comprehensive	16	251	2.8	21	0.4	277	3.2	3.2	19.6
52.08	Financial Management and Services									
	Research	29	216	1.5	45	0.6	255	2.1	2.2	18.8
	Doctoral	11	205	2.3	26	0.5	230	2.6	2.6	16.5
	Comprehensive	21	235	2.8	26	0.5	259	3.2	3.3	18.3
52.09	Hospitality Services Management									
	Research	9	201	1.6	11	0.2	211	1.9	2.9	14.5
	Comprehensive	5	229	3.4	na	na	231	3.5	3.7	15.4
52.10	Human Resources Management									
	Research	11	142	1.0	72	1.3	206	2.5	2.7	16.6
	Comprehensive	5	148	1.6	107	2.6	145	2.7	2.8	13.4
52.12	Business Information and Data Processing Services									
	Research	5	308	1.9	22	0.4	330	2.3	2.5	22.9
	Doctoral	9	273	2.7	30	0.6	293	3.1	3.2	20.4
	Comprehensive	11	254	3.5	32	0.6	272	3.9	3.9	19.8
52.13	Business Quantitative Methods & Management Science									
	Research	11	190	1.4	47	0.9	238	2.3	2.7	17.9
52.14	Marketing Management and Research									
	Research	30	213	1.5	36	0.5	248	1.9	2.1	18.1
	Doctoral	12	244	2.3	29	0.4	271	2.6	2.6	19.3
	Comprehensive	24	206	2.7	27	0.5	230	3.1	3.2	16.4

Delaware Study National Benchmarks—Norms by Carnegie Classification

TABLE FIVE

Normative Instructional Cost Ratios, Research and Public Service Expenditures (FY 97-98)

CIP	Discipline/Carnegie Classification	N*	Direct Exp. per SCH	Direct Exp. per FTE Student	Personnel of Direct Instr. Exp	Research FTE T/TT Faculty	Service FTE T/TT Faculty	Res. + Service FTE T/TT Faculty
9.00	COMMUNICATIONS							
	Research	51	157	4,676	92	2,282	941	2,984
	Doctoral	23	132	3,872	91	295	225	553
	Comprehensive	52	127	3,755	95	119	0	137
	Baccalaureate	8	118	3,544	92	na	na	na
9.01	Communications, General							
	Research	19	112	3,380	95	2,058	-1	1,647
	Doctoral	11	109	3,157	91	39	3	127
	Comprehensive	34	94	2,893	95	96	0	32
	Baccalaureate	5	118	3,537	91	na	na	na
9.04	Journalism and Mass Communications							
	Research	25	189	5,667	91	1,540	1,068	2,387
	Doctoral	7	137	4,138	92	650	0	1,167
	Comprehensive	12	182	5,450	95	211	0	246
9.07	Radio and Television Broadcasting							
	Comprehensive	5	166	5,277	94	na	na	na
11.00	COMPUTER AND INFORMATION SCIENCES							
	Research	32	170	5,156	90	54,992	615	55,981
	Doctoral	20	141	4,196	89	19,052	552	21,764
	Comprehensive	34	119	3,626	94	1,035	0	423
	Baccalaureate	7	203	6,091	92	na	na	na
11.01	Computer and Information Sciences, General							
	Research	27	164	5,162	90	53,980	337	54,890
	Doctoral	16	132	3,833	91	18,880	2,909	22,270
	Comprehensive	20	123	3,787	94	8,240	0	71
	Baccalaureate	6	221	6,625	83	na	na	na
11.07	Computer Science							
	Comprehensive	13	112	3,498	94	189	0	94
13.00	EDUCATION							
	Research	116	235	5,619	92	15,230	7,364	30,699
	Doctoral	65	167	4,105	93	8,697	2,687	13,336
	Comprehensive	135	143	3,775	95	186	366	917
	Baccalaureate	18	156	4,333	87	0	0	0

N* = number of institutions responding

BEST COPY AVAILABLE

AN ALTERNATIVE LOOK AT THE COST QUESTION

Dennis P. Jones

Introduction

Higher levels of education increasingly are being seen as necessary to success. This is true whether "success" is defined by a recent graduate entering the job market, a government official who recognizes the close link between educational attainment, economic competitiveness, and quality of life, or employers who recognize that their own futures are determined largely by their employees' knowledge and skills. However, with importance comes angst. The consequences of denied access to higher education, whether through overt action or mere circumstances, are too great to be acceptable to any of higher education's supporters and clients. Anything that limits access, even indirectly, becomes cause for concern and attention. So it is that the costs of providing educational services—and the prices associated with acquiring those services—have come under increasing scrutiny.

One manifestation of this scrutiny was the appointment of the National Commission on the Cost of Higher Education. In its final report to Congress in 1998, *Straight Talk About College Costs and Prices,*[1] the Commission made several cogent points:

- Concern about rising college prices (for students) is real.
- Confusion about cost and price abounds, and the distinction between the two must be recognized and respected. *Costs* are what an institution spends to educate a student, and *prices* are what institutions charge students.[2]
- Higher education institutions are financially opaque, even to most people in the academy.
- Virtually no activity...generates enough revenue to pay for itself. Everything is "subsidized" to a greater or lesser extent.
- Higher education costs are driven by people and by how these people spend their time.
- The public and its leaders are concerned about where higher education places its priorities.

What the Commission does not say, however, is that not all responsibility for the "cost" problem can be laid at the feet of the academy. By failing to invest selectively in institutions, public policymakers are also to blame. The Commission placed a good deal of faith on the capacity of improved cost analysis as a tool to get to the root causes of cost increases. Recommendations were directed to both leaders within the academy and Congress to strengthen cost analysis through more consistent and accurate reporting of costs. But unless some changes are made to traditional approaches to cost analysis in higher education, greater attention to cost measurement is likely to lead to frustrating excursions in technical nit-picking, rather than to strengthened cost management. Other tools are needed that focus on how assets are managed within institutions, which in turn will illuminate the key drivers of costs and inform investment decisions.

It is the (probably overly ambitious) purpose of this paper to remove some of the mystery that surrounds the consideration of costs and prices and to propose some tools to make the financial matters of colleges and universities a little less opaque. Much of the terminology and analysis of the Cost Commission are maintained, but with much greater attention

to the matters of people and how they spend their time and the effect of public policy choices on issues of costs and prices.

The Inherent Complexity

There are reasons that issues of costs and prices in higher education institutions are complicated matters. First, colleges and universities are large and complex organizations. Even small institutions are multi-million dollar enterprises; larger ones are like billion dollar corporations. Regardless of the industry, it is difficult to understand the financial intricacies of a "firm" of this scale.

Second, higher education has a broad client base. Colleges and universities simultaneously serve many masters, among them:

- students and, in some cases, their parents;
- employers;
- state governments;
- the federal government;
- communities and sub-state geographic regions;
- internal clients—academic networks and disciplines; and
- a variety of other audiences whose interests range from the broad public interest to very specific concerns.

Each of these clients and supporters comes to higher education with different needs and expectations. These needs are neither totally unique (Figure One-A) nor totally congruent (Figure One-B). Rather, they are partially overlapping (Figure One-C), having some areas where their needs/expectations are unique and other areas where they are fully congruent. The broader the mission of the institution, the broader the array of clients and the more diverse the set of needs and expectations. Stereotypically, major research universities have the broadest constituency base, and liberal arts colleges—those institutions having a singular focus on instruction—have the least diverse set of clients. Although their missions are generally confined to the instruction function, community colleges typically have a varied set of clients, each seeking a different benefit.

Third, each of these clients brings resources to the table (Figure Two). External clients contribute revenue in some form or another, and internal clients—faculty, in particular—contribute skills. In some cases, a considerable number of strings are attached to these resources, as in the case of federal funds restricted to conducting a specific research project. In other cases, few stipulations on their use are made (for example, tuition paid by students or states' general fund appropriations). Even in the latter cases, however, clients/funders view their contributions in transaction terms: they see themselves as purchasing a service, and they expect a return on their investment. One of higher education's historic problems is the poorly specified nature of the transactions; state governments, in particular, frequently articulate their expectations only after they become frustrated with seeing them ignored or unfulfilled and the relationship is threatened.

Fourth, the colleges and universities that enroll the majority of students (at least those institutions that typically are included in conversations about prices and costs) are creatures of the states. As a result, fiscal records and reporting conventions tend to be established in conformity with local protocols and practices. These directives typically are couched in general terms; for example, funds often are appropriated to support academic functions within the approved institutional mission. Generally accepted accounting practices leave many degrees of freedom with regard to the specifics of implementation.

Finally, the fact that the clients' needs and interests overlap means that institutions often can respond simultaneously to these needs with a single set of activities. At the extreme are cases in which a single activity simultaneously services multiple, totally unique needs (as viewed from the clients' perspectives). The classic case of such a production of joint products occurs

A Depiction of Clients and Their Expectations

FIGURE ONE-A
Unique Expectations

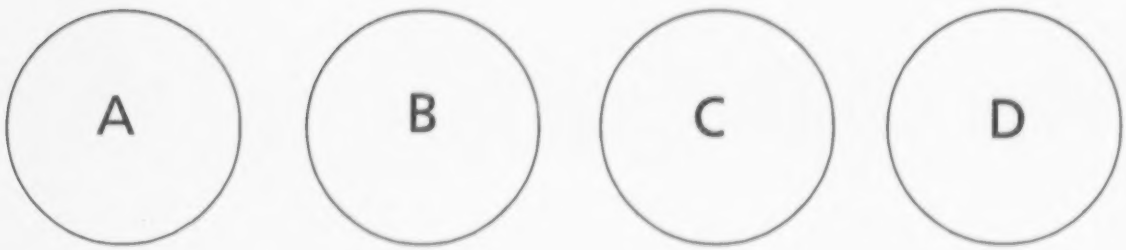


FIGURE ONE-B
Completely Congruent Expectations

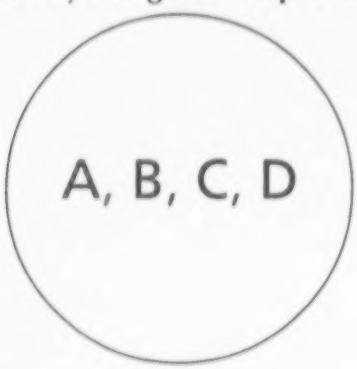


FIGURE ONE-C
Overlapping Expectations—The Norm

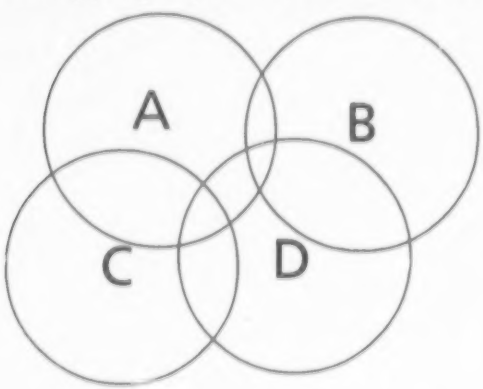
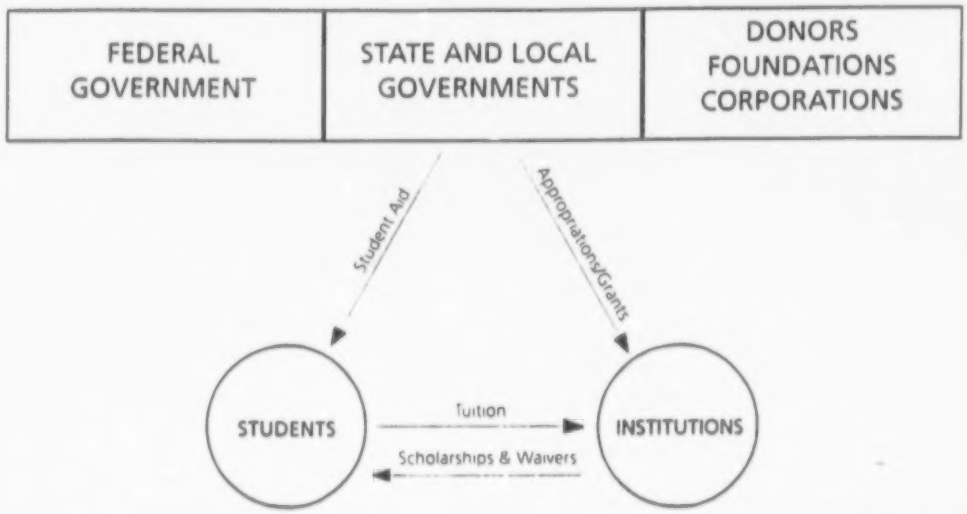


FIGURE TWO

Funding Flows in Institutions of Higher Education



when the clinical professor, in the process of making hospital rounds, provides medical care to patients, instructs an accompanying group of interns, and acquires information to be included in a research project. There are many similar instances in other walks of academic life. The broader the institutional mission, the greater the likelihood of this phenomenon.

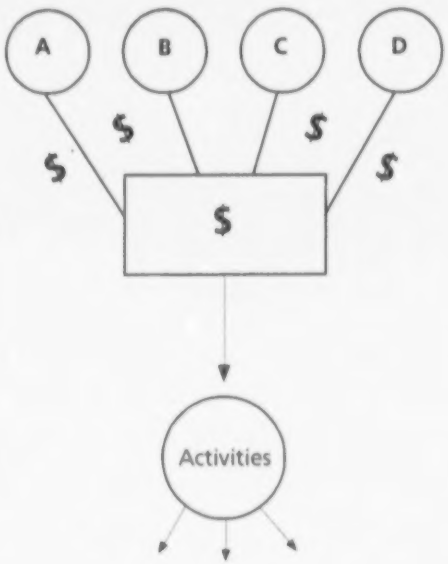
At their most simplistic, institutions operate in accordance with the Figure Three, which is intended to convey the following important points:

- Institutions take funds from multiple sources.
- Many of these funds are comingled (unrestricted funds lose their identity immediately upon receipt).
- These funds support a single (or common) set of activities.
- These activities provide multiple outputs that respond to the different needs of different clients.

Because of the structure of this pattern, it is not possible to track specific revenues through the process to specific outcomes. (This is why, among other things, no one can "prove" that there is—or is not—a causal connection between federal loan funds, institutional aid, and tuition increases.) Those who make the largest investment—usually students collectively and state governments—are left with the necessity of reexamining their value propositions. Is what they are getting worth the prices they are paying? If, for whatever reason, a client decides that the answer is "no," higher education institutions are not necessarily forced to change the way they do business. They can effectively reduce the price to one client by increasing prices to others, not unlike the practice of airlines that offer reduced rates to infrequent travelers by increasing fares for business travelers. The analog in higher education has been offsetting reduced state appropriations by increasing tuition and fees. Only when several clients (or the primary ones) collectively ward off price inflation does the issue of costs become the focal point. In short:

BEST COPY AVAILABLE

FIGURE THREE



- Prices to clients collectively can be reduced only if institutional costs can be reduced.

- Prices to individual clients (groups) can be reduced without changing the cost structure as long as prices to other clients can be increased sufficiently to keep total revenues constant.

The Client Perspective

In order to understand the extent to which client needs and interests converge/overlap, it is instructive to consider a brief inventory of the client-institution transaction from the perspective of certain important constituencies. This exercise has three purposes:

- It points out nuanced differences in client interests; in some cases, the amount of overlap is not as great as it initially appears.

- It helps identify outputs and services that none of the clients is expressly seeking.

- It helps bring into sharper relief the issue of costs as driven by priorities, as not all outputs or services are equally valued by all clients.

At a fairly superficial level, it is possible to deconstruct the interests of the primary client groups into a listing of purchases, or the those the client is most likely to want to obtain as a result of his/her spending on higher education.

Three points about this listing are particularly germane to subsequent discussion of cost issues. First, while "access" is a priority for almost all the client groups, the term means different things to different groups. For government officials, *enrollment access* typically means to public institutions; for employers and community leaders, it means local access to needed academic services; and for students, it means not only convenient access to institutions, but also access to institutions' key assets once enrolled including small classes, full-time faculty, and classes offered at convenient times. Student access in particular impacts the cost equation. Second, there is the question not only of access but of success—not just enrollment, but graduation. Finally, and essential to the cost equation, those clients seeking new knowledge (the outcome of research activities) provide funds that are restricted to these activities, usually on a contractual or grant basis. Unlike other purchasers of services who are buying a generalized set of activities, outcomes, and outputs, their purchase of this service is explicit, not implicit.

Problems on the Benefit Side of the Cost Proposition

In most cases, clients of any organization do not complain about prices if they feel they are getting full value for their investment. As a matter of self-interest, they certainly want to see prices minimized. The lower the price, the better their cost/benefit ratio. Still, serious questions emerge only when perceived benefits (that is, short-term benefits) are insufficient relative to price. Thus when serious concerns about prices and costs in higher education arise, it is instructive to examine the

Higher Education Clients and Their Needs/Expectations				
STUDENTS	EMPLOYERS	STATE GOVERNMENT	FEDERAL GOVERNMENT	LOCAL COMMUNITIES
Access to institutional assets and resources • Degrees or certificates (institutional outputs) • Preparation for subsequent stages in their lives (institutional outcomes, such as employment, achievement of status, further education, civic leadership)	Well-educated individuals who can become new employees • A source of continuing education for current employees • Help with specific problems, usually through contractual arrangements	Access to opportunity where higher education is the de facto gatekeeper • An educated citizenry, which correlates with high incomes, low unemployment, lower demands on state services, and greater involvement in civic affairs • Educated individuals who can fill positions in public and private enterprise; enhanced opportunities for economic development and a higher quality of life.	Access to opportunity where higher education is the de facto gatekeeper • An educated citizenry, which correlates with high incomes, low unemployment, lower demands on federal services, and greater involvement in civic affairs • Attention to national research and development priorities, particularly those associated with defense and improved health care, through contracts and grants with specific providers	A local gateway to postsecondary education that can help the community better itself and/or retain advantages it already has • An educated citizenry with its attendant benefits • Economic benefits to communities through jobs, research and development, and housing

benefits side to gain further insight. What are the problems from the clients' perspective?

From the student perspective, reasons for unhappiness are clear. Prices for them are increasing more rapidly than for any other client. Over the past decade, institutions (and other clients) shifted a greater share of the burden to students. At the same time, they see their benefits eroding—especially those defined in terms of access to institutional assets. For example, they have more trouble getting into classes they want, and it is increasingly likely that when they do, they will be in larger classes being taught by part-time faculty members.

Employers complain about college graduates' poor preparation (especially in terms of higher order academic skills and interpersonal skills) and about institutions that are unresponsive to their immediate needs. Businesses are moving to just-in-time purchasing of other goods and services and expect the same client treatment when purchasing employee training.

States are dissatisfied with high attrition and low graduation rates, both of which raise questions about productivity and concerns that the adult population's educational attainment levels will increase too slowly. In addition, many states are worried about institutions' ability and willingness to accommodate the coming wave of new students within the resource limits they foresee. If institutions shift even more of the burden to students, economic barriers will prevent many of the individuals who comprise this new wave—minorities, recent immigrants, etc—from gaining access to higher education at all. It is around this latter point that federal officials exhibit the greatest consternation. Any price increase to students affects them directly through the implications for student financial aid programs. As such programs have become focused increasingly on middle-income students and their families, price increases have the potential to have an amplified impact on low-income students, reducing access to significant portions of the population whose participation in higher education is already low.

Certain threads that run through these observations have clear implications for policy-level conversations about prices and cost. Most important is the clear focus of the perceived problems, and where value is thought to be eroding relative to investment. Concern is expressed

BEST COPY AVAILABLE

about undergraduate education—not graduate education, not research, and only to a small degree, public service. Concern about prices is consistent across all client groups. And when all clients become concerned about prices, attention inevitably turns to producer costs.

The conditions described in the previous sections describe a very real and complex issue. Most attempts to address the issue have led policymakers down a path that quickly becomes a maze. Well-intentioned efforts to respond to policymakers' legitimate questions and concerns about costs almost inevitably lead to solutions that seem to obfuscate as much as educate because they are complicated and because they are based on data idiosyncratic to the specific question being asked at that time. Because no national data exist that are sufficient to drive conceptually sound costing studies, analysts are left with the options of using state-level data (which vary from state to state), collecting original data, or forming voluntary consortia of data providers. Finally, and most important, the level of detail in most evaluation of costs is so minute that analysis itself invites policymakers deep into the inner workings of institutions—well below the level of policy and into institutional operations. The analogy is asking for the time of day and being told in response how to build a watch. The answer is not responsive to a simple question, and it creates mistrust and invites micromanagement.

The question thus becomes, "How can we have an informed and meaningful dialogue about costs—one that focuses on policy-level topics, not accounting arcania?" A suggestion is presented in the following section.

The Limitations of Cost Measurement

There are well-developed approaches to calculating costs in higher education and to allocating those costs across the various functions performed—instruction, research, public service, academic support, etc. These kinds of analyses have proven useful over the years, but they also have their limitations, among them:

- The fact that these analyses start with accounting data and rely on adjustments to, and allocations of, these financial data to yield final answers. As a consequence, the results are influenced heavily by the purposes, conventions, and limitations of such data. Accounting data primarily serve the transactional and fiduciary needs of the institution—from where (and under what conditions) did funds come, and by whom and for what purposes were they used. These data were not intended to serve the primarily analytic needs of the institution, such as providing a straightforward answer to the cost question. A major impediment is the accounting convention that identifies research costs as those funds that are budgeted separately for research purposes rather than those costs associated with research activities. The result is that much research activity is hidden in costs actually associated with the instructional function.
- The intermediate products of cost allocation procedures are often more useful than the final result. In allocating instructional costs to various disciplines and levels (lower division, upper division, etc.), it is necessary to use data about the use of faculty time. Such data have enormous value in their own right, but they are hidden from view in the final products of the typical cost study.
- Even if data are available at the institutional level, they are not available on a consistent basis at the national level, even in their most rudimentary form. As a consequence, national cost studies are necessarily conducted without use of some more revealing data.
- Knowing what costs are is not the same as being able to manage costs. A basic need that remains unanswered by most cost analyses is how resources can be reallocated across different priorities. A good deal of time and energy goes into separating and allocating cost components that are not susceptible

to decision making. For instance, one may learn that $X million in costs is attributable to utilities, but these costs (or most of them) must continue to be incurred, or buildings will become hot/cold and dark—in short, useless.

An alternative to this accounting-based approach is to ask the question about costs in a slightly different manner so as to reveal how institutional assets—and especially human assets—are used, and by addressing the value of investments relative to performance from the perspective of different client groups. Because more than 80 percent of institutional costs are personnel related, most cost behavior—and cost drivers—can be understood by looking clearly at:

- Staffing patterns—how many employees of what kinds does the institution have?
- Asset prices—at what levels are these employees being compensated?
- Staffing allocation/utilization—what are these people doing?

By understanding institutions' asset structure, and how those assets are used, we illuminate the key drivers of costs, specifically in a way that can inform decisions about reallocation of resources.

In addition to addressing asset management, it is necessary to analyze the relative value of the investment in order to judge performance against the resources spent. This is harder to do, as analysts are hampered by the absence of absolutes, since there are no "right" levels of expenditures. To determine a way to think about relative values, it is almost always necessary to search for benchmarks or comparisons so as to be able to judge performance. In some cases, benchmarks are provided by the institution's own history—thus, the importance of trend lines; in other instances, the basis of comparison lies in other institutions. Understanding cost behavior by focusing on the nature and utilization of institutional assets is no different. A basis of comparison will be needed if results are to be interpreted in a meaningful way.

Key Indicators

Relatively few of the data necessary to address cost issues in the way being proposed come from accounting records. Consequently, fewer of the data items are likely to be available in the normal course of business. In this section, key indicators related to both parts of the value proposition for different client groups—the valued conditions and the price factors—are identified. Subsequently, those variables proposed to be most useful in explaining institutional costs are presented.

Indicators Associated with the Value Propositions of the Different Clients

The following section summarizes some ways to evaluate the perception of "value" of the investments made by higher education's major client groups: students, state government, the federal government, and employers. A brief description of the major variables that can illuminate value follows. A more complete inventory of possible measures is provided in Appendix One.

Students: To understand the "value proposition" for students, trend data on changes in prices and benefits can be compiled, and the two evaluated in relation to one another. Are prices increasing more rapidly than benefits? Are prices increasing more rapidly than income, after scholarships? On the benefit side, what are the trends in graduation and attrition rates? What can be learned about student access to institutional assets from evaluation of data on the number of sophomores and freshmen being taught by tenure-track faculty, class size, and the number of sections being taught by full-time faculty? None of these measures by themselves demonstrates value, but the combination of them over time provides useful information about value.

State Government: Similarly, the value of the investment to state government can be illuminated

through data analysis that charts trends in support in relation to prices and benefits. Again, no single measure defines value, but considering the different trends in comparison to one another shows whether value is likely to be increasing, decreasing, or staying roughly the same. In addition to knowing what is happening with price trends, using the same measures as are pertinent to students, state governments will want to monitor trends in unrestricted state appropriations per FTE student, trends in access for first-time, full-time freshmen as a proportion of recent high school graduates, and measures of the educational attainment of the adult population. Comparisons with other states on these measures are also helpful. States also are interested in monitoring trends in extramural research by tracking competitive research funding in relation to numbers of faculty and the population of the state.

Federal Government: Because the federal government's primary interest in higher education has to do with access and choice, it will want to monitor changes in prices in relation to income, and how these relate to participation rates for individuals in different income categories. Although the federal government is the major client for contracted research, the evaluation of value in research is generally not conducted along the same veins as other elements of the cost/price equation. Research is evaluated primarily in the context of defense spending and health policy, not as part of higher education.

Employers: Employers will also be interested in price trends. They alone among the major constituent groups are likely to be interested in knowing the number of graduates by field, as well as state and regional institutions' ability to provide necessary services, such as employee training and technical assistance.

Variables That Explain Institutional Costs

It has been argued earlier in this paper that much can be understood about cost behavior in colleges and universities by analyzing data about institutions' human assets—the number of employees of various kinds, compensation levels, and their utilization. Some of the key measures in these regards are presented below.

Number of employees: Trends in the number of employees relative to the size of the student body, for a single institution and/or groups of institutions having generally similar missions (especially those having significant levels of research activity).

1. FTE students/FTE total employees
2. FTE students/FTE faculty
3. FTE students/FTE administrators, with administrators calculated separately as executives and other professionals, as well as the total number of administrators
4. FTE students/FTE technical staff
5. FTE students/FTE clerical staff

Patterns of employment:

1. Levels of technical support being provided
   - FTE faculty/FTE technical staff
   - FTE exempt employees (faculty and administrators)/FTE technical staff
   - Levels of clerical support being provided
   - FTE exempt employees (faculty and administrators)/FTE clerical staff
2. Size of administration
   - FTE faculty/FTE administrators (executive and other professionals)
3. "Top heaviness" of administrative structure
   - FTE other professional/FTE executive/managerial (the smaller this number, the more top-heavy the administrative structure)
4. Dependence on part-time faculty
   - Proportion of student credit hours (SCH) taught by part-time faculty

- Number of full-time faculty/number of part-time faculty
- FTE part-time faculty/total FTE faculty

The basic data for all these calculations (save those dealing with the proportion of SCH taught by part-time faculty) are available in a reasonable form from the Integrated Postsecondary Education Data System (IPEDS). A simple display format for these data is provided in Figure Four.

Compensation levels:

1. Average salaries
   - Trends in average faculty salaries, by rank
   - Typical payment to part-time faculty member for teaching a single course
   - Trends in executive salaries
   - Trend in executive salaries relative to total salaries
   - Trends in average salaries relative to the Consumer Price Index
2. Benefit levels
   - Trends in benefits levels
   - Trends in benefits as a proportion of total compensation.

The data necessary for these calculations also typically are found in IPEDS (the exception being payments to part-time faculty members). They are summarized in Figure Five. While the data about numbers of employees and staffing patterns indicated in Figure Four describe the relative size and composition of the institution's human assets, the data in Figure Five describe the annual price per unit of continuing to employ this asset.

Compensation as a proportion of education and general expenditures: This approach to analyzing cost drivers is predicated on the observation that most costs in higher education are associated with institutions' human assets. While this is almost universally true, it is important to monitor the extent to which this orientation toward human assets is increasing or decreasing. Many current cost-saving approaches in higher education—particularly those involving the outsourcing of functions that historically have been performed by institutional employees—have the possibility of changing the equation somewhat, although it is unlikely that traditional colleges and universities will ever be able to change the mix to the extent that salaries become less than half the institution's operating expenditures. On the other hand, many institutional practices (such as protecting people at the expense of other expenditure categories) create forces in the opposite direction. In order to monitor this relationship, it is important to maintain trend data on the ratio of compensation expenditures to total expenditures.

Allocation of human assets to functions/activities: While data about numbers and types of employees and their compensation levels provide insights into the overall operating costs of institutions, it is information about the allocation of personnel to functions and activities that is most revealing. These are the data that reveal the preferences and priorities of those within the academy and open the gates to conflict between producers and clients regarding whose priorities are to be served. These are also the data, however, that help the most in explaining (or at least describing) cost behavior in colleges and universities.

The measures required to explain a good bit of cost behavior are very limited in number.

1. Expected teaching load: The number of course sections (or course credit hours) a full-time faculty member is expected to teach in a semester and in an academic year. For example, at community colleges, it is typical that faculty teach five courses (15 course credit hours) each semester. At other institutions, the expected teaching load is less, but expectations regarding other functions—research/scholarly activity and public service—are greater. It is extraordinarily important to track this evolution of expectations over time to ascertain the extent

FIGURE FOUR

	Full-Time	Part-Time	FTE
Executive/Managerial			
Other Professional			
Faculty			
Full Professor			
Associate Professor			
Assistant Professor			
Instructor			
Technical			
Clerical			
Students			

FIGURE FIVE

	(1) Total salaries	(2) Benefits	(1+2) compensation	Number in category	Average	
					Salary	Compensation
Full-Time Faculty						
Professor						
Associate						
Assistant						
Instructor						
Executives						
President						
VP-AA						
Part-Time/Course						

BEST COPY AVAILABLE

to which shifting expectations are affecting cost behavior. Over the longer term—20 to 30 years—the trend clearly has been to engage in more scholarly activity (whether funded or not) at the expense of instructional activities.

2. Allocation of time to functions and activities: While expectations regarding allocation of time and attention set the context, it is in the actual utilization of human assets that priorities—and the explanations for much cost behavior—are found. In the most basic form, the necessary data describe how much of each type of human asset (categories of personnel measured in full-time equivalents) is allocated to various functions and activities.

   Data in this form are seldom readily available in institutions. The interesting phenomenon is that data on individual faculty members are commonly collected and maintained in their personnel folders. However, the data rarely are compiled to provide management information about the (probably changing) patterns of utilization of higher education institutions' most important asset.

   Such data have the capacity to reveal important behaviors that can have significant cost consequences. For example, they reveal the extent to which:

   - Faculty resources are being devoted to unfunded research—research where priorities are established by providers, not funders/clients.
   - The concept of "public" service has been changed to "institutional" service—service on committees, etc. The latter is probably better viewed as an administrative cost, reflecting an orientation to internal processes and needs rather than service to external clients.
   - Functions/activities previously performed by full-time faculty, such as academic advising, are now provided by others (either part-time faculty or professional staff).

   It is in these data that much of the explanation for cost behavior—and the possibility of conflict between client priorities and the academy's revealed priorities and practices—lies.

3. Faculty productivity: This topic can get very complicated. But for most institutions, it involves teaching productivity as measured in SCH produced per FTE instructional faculty. FTE instructional faculty data are available from Figure Six. The additional requirements include determining these figures for each discipline and adding data about SCH production. The data format suggested is as follows (See Figure Seven).

   These data do much to explain cost differences across fields and levels. Viewed over time and across different types of institutions, insights into changing cost patterns can be obtained.

4. Class-size distribution: While measures of faculty productivity reveal the extent to which various parts of the institution are being operated in ways designed to constrain costs, such measures can mask the impact on the student experience. For example, it is possible to be very "efficient/productive" through the use of very large classes. This is most likely to occur in general education courses at the lower-division level. As a way of understanding both practices that are inefficient and increase costs (significant numbers of very small classes) and those that violate students' value propositions (classes too large for an effective learning experience), it is managerially useful to compile class-size distribution data on a regular basis (See Figure Eight).

FIGURE SIX

	Faculty		Executive/ Managerial	Other Professional	Technical	Clerical
	Full-Time	Part-Time				
Instruction						
Lower Division						
Upper Division						
Graduate						
Academic Advising						
Research						
Sponsored						
Not Sponsored						
Public Service						
Department Service						
Institutional Service						
Discipline Service						
Service to Clients						
Academic Support						
Student Service						
Institutional Support						

Incidence of, and trends in, these data serve to point out areas of high cost as well as the reasons for unhappiness on the part of student clientele groups.

Other Considerations: While costs associated with acquiring and utilizing human assets explain a significant amount of the cost behavior of colleges and universities, other factors also must be considered, if only because they are consistently incorporated into explanations of price increases.

1. Facilities costs: It is conventional wisdom that 1) today's students expect a physical environment with more amenities, and 2) the costs of maintaining these facilities (avoiding deferred maintenance) contribute significantly to overall cost behavior. A very limited set of data can shed light on these factors:
   - Replacement value of the physical plant (the portion not funded through use fees, thus excluding auxiliary enterprise facilities).
   - Annual expenditures on renewal and renovation.
   - Real (excluding inflation) value of the physical plant.

   Using these data, it is possible to calculate the extent to which institutions are handling deferred maintenance; if annual expenditures are less than 1.5 to 2 percent, additional deferred maintenance is being accrued. It also is possible to determine whether facilities costs per FTE student (measured in constant dollars) are indeed escalating.
2. Equipment and technology costs: Another factor in the overall cost equation is the rapidly expanding use of technology and the costs associated with acquiring, maintaining, and utilizing that technology. Some of these costs are reflected in personnel data—for example, increasing numbers of technical staff. In addition, however, it is important to identify costs associated with technology itself. In this regard, the following data are significant:

BEST COPY AVAILABLE

FIGURE SEVEN

SCH Production per FTE Faculty

	Part-Time Faculty	Full-Time Faculty
Discipline A		
Lower Division		
Upper Division		
Graduate		
Discipline B		
Lower Division		
Upper Division		
Graduate		

FIGURE EIGHT

Class Size Distribution

COURSE SECTION SIZE	<10	10-19	20-29	30-49	50-99	100+
Discipline A						
Lower Division						
Upper Division						
Graduate						
Discipline B						
Lower Division						
Upper Division						
Graduate						

NOTE: Entries are numbers of course sections.

BEST COPY AVAILABLE

- Book value of technology/equipment
- Annual depreciation costs of technology/equipment
- Annual expenditures on technology/equipment

These data put the technology investment in perspective. They also indicate how rapidly investments are increasing and the extent to which investments are being maintained (are annual replacement expenditures greater than depreciation?).

Implications for Policymakers

Previous sections of this paper have argued that cost behavior in higher education institutions can be explained largely in terms of the mix, quantities, prices, and allocation of key institutional assets, particularly faculty and staff. They also suggest that prices borne by different constituents are determined largely by distribution of these costs among them and how these are perceived in terms of the value to the constituent group.

Because this is a concept paper rather than a research document, no attempt has been made to put data into the suggested frameworks in any systematic way. Experience, however, serves as the basis of the following hypotheses concerning what such data would reveal if examined over 20 to 30 years:

- Much greater variation in teaching loads across institutions with different missions. This variation has occurred as a result of steadily decreasing teaching loads at four-year institutions even as research (in particular) and service components of the mission have greater importance within the internal value system.
- An increasing amount of unfunded research—research being done through reduced teaching loads without an associated stream of revenue from a constituent explicitly seeking the creation of new knowledge.
- A changing mix of faculty and staff—particularly more part-time faculty and more professional staff engaged in both resource acquisition (fundraising, legislative relations, etc.) and functions previously considered the domain of faculty (academic advising, for instance).
- A significantly more internally focused notion of public service—with much more orientation to institutional and discipline service and proportionally less service to the public.
- Increases in faculty and staff salaries (asset prices) that exceed the CPI in most years. (What is less clear is whether compensation costs have changed materially in relation to overall costs.)
- Increases in costs of technology.

If these hypotheses are reasonably close to reality, then the implications for policymakers are several. First, there is the need to recognize that costs—and typically prices (or student share of prices)—vary with institutional mission. As a corollary, it must be recognized that an institution within a particular mission category has limited ability to unilaterally change its costs structure in any significant way. The prices of its assets are largely determined in a national—even international—market. No institution, especially those with the most multifaceted missions, can pay salaries substantially below market prices and still manage to acquire and maintain a faculty capable of addressing all components of that mission. Institutions also cannot unilaterally change teaching loads without losing faculty who joined that particular academic community with certain expectations and understandings of the distribution of effort across the functions of instruction, research, and public service. Policymakers thus would be well advised to focus less on changing the cost structures of individual institutions and more on supporting institutions with missions more aligned with their needs and interests. If the objective is to provide undergraduate education in the most cost-effective manner, then public policy should emphasize investment in those institutions that have

undergraduate education as their primary, if not sole, mission. It makes little sense to "buy" significant quantities of research and services in order to acquire the opportunity for undergraduate students if that is the priority. An alternative is to support certain functions in institutions with broader missions and encourage them to seek alternative funding sources for other functions. The bottom-line lesson is that a one-size-fits-all policy generally is not appropriate.

A second implication is that policymakers need to attend explicitly to the purchase (intended and, especially, unintended) of research and service. Again, the policy agenda should be less an attempt to change institutional missions—especially by direct action—than an attempt to obtain desirable outcomes as a consequence of research and service activities. This strategy recognizes that research institutions will continue their research activities, but there is reason to expect that this activity be directed toward objectives defined to be in the public interest.

This advice is in keeping with broader movements in public policy regarding higher education—away from regulation as the primary policy tool and toward the creative use of market mechanisms to obtain designed results. In this case, public policymakers need to behave as informed consumers, buying services from those institutions that provide the greatest value—desired outcomes at the most reasonable price—rather than from institutions that have the highest status.

Conclusion

This paper argues for an assessment of cost behavior approached from the perspective of maintenance and the use of key institutional assets, especially human assets. Such an approach allows direct inspection of the factors that cause costs as revealed in accounting data to be what they are. This approach makes preferences and priorities—as revealed in the use of people's time—explicit. This is its benefit; it is also its danger. It sheds light on "cross-subsidies." More importantly, it can shed light on the incidence of activity for which no client is explicitly paying.

Such an approach directs the debate about costs away from a technical discussion about means and toward a value-laden discussion about purposes and ends. Further, it draws attention to differences in the ability/willingness of different kinds of institutions to produce different products. Because the consensus about these ends appears to be eroding, it may be well to join the debate at this level. Continued conversation about the costs of producing services about which clients/funders are not in full agreement that can never be brought to a satisfactory conclusion. A focus on (different) ends is a necessary adjunct to the cost debate. ■

Notes

[1]National Commission on the Cost of Higher Education. 1998. *Straight Talk About College Costs and Prices*. Phoenix, AZ: Oryx Press.

[2]The Commission defines cost as "what institutions spend to provide education and related educational services to students." Price is defined as "what students and their families are charged and what they pay." National Commission on the Cost of Higher Education, *Straight Talk About College Costs and Prices*, p. 6.

APPENDIX ONE:

Suggested Measures for the Evaluation of Value to Key Client Groups

I. Student Value Measures

A. Prices:

1. Trends in tuition (sticker) prices for institutions/types of institutions.
2. Sticker prices as a proportion of per capita income (or, better still, personal disposable income).
3. Trends in real prices (sticker prices minus scholarships and price discounts).

B. Benefits:

1. Graduation rates (particularly differentiated for students with different test scores, performance in college preparatory classes in high school, etc.). The need is for students to see the graduation rates of other students generally like them, not for the "average" or "typical" student.
2. Access to institutional assets (all of these measures can be derived from analyses of institutional data or from data compiled from current student and alumni surveys):
   a. Proportion of freshman/sophomore courses taught by full-time tenure-track faculty
   b. Proportion of freshman/sophomore courses taught in classes of fewer than 30 students (or, more generally, in classes small enough to foster true active learning)
   c. Number of freshmen/sophomores who were denied access to one or more courses in which they attempted to register
   d. Reported levels of student satisfaction regarding access to classes, programs, faculty, and services such as advising and counseling
   e. Preparation for subsequent activities
   f. Job placement rates
   g. Rates of enrollment in graduate school
   h. Reported alumni involvement in community activities

II. State Government Value Measures

A. Investments to state government:

1. Trends in unrestricted state appropriations per FTE student.
2. Changes in prices charged to students (the same price measures as are of interest to individual students).

B. Benefits of interest to state government:

1. Trends in access:
   a. Full-time, first-time freshmen as a proportion of recent high school graduates
   b. Part-time undergraduate enrollments as a proportion of 25-44 year-old population

2. Trends in educational attainment:
   a. Educational attainment of the adult population
   b. College graduates per 100 high school graduates
3. Trends in research funding
   a. Competitive research funding received per capita

III. The Federal Government's Value Measures

A. Price:

1. To individuals—the same price measures as are of interest to individual students.
2. Low overhead components in the price of research.

B. Benefits:

1. Access
   a. Participation rates (particularly differentiated by income category)
2. Attainment
   a. Educational attainment of the adult population
   b. Graduation rates
   c. Number of college graduates relative to the number of high school graduates

IV. Employers' Value Measures

A. Price: Because prices to employers are typically determined by prices charged to their employees as individuals, they are interested in the same price measures as individual students. Because employees seldom get price breaks, sticker prices are of primary concern.

B. Benefits:

1. Numbers of new employees
   a. Numbers of graduates by field, especially in state and regional institutions
2. Reported ability to acquire necessary services (employee training, technical assistance, etc.) from state and regional institutions. These are among the most difficult, and least frequently gathered, data.

Seminar on Higher Education Cost Measurement and Management

AUGUST 10, 1999
DOYLE WASHINGTON HOTEL
WASHINGTON, DC

Agenda

8:30 a.m. – 9:00 a.m.	*Continental Breakfast*
9:00 a.m. – 9:15 a.m.	**Welcome and Introductions** Jamie Merisotis, President The Institute for Higher Education Policy Madeleine d'Ambrosio, Executive Director TIAA-CREF Institute
9:15a.m. – 9:30 a.m.	**Purpose and Goals of the Seminar** Jane Wellman, Senior Associate The Institute for Higher Education Policy
9:30 a.m. – 10:30 a.m.	**What's Going on in Cost Measurement? A Review of the Landscape** • Institutional and State-Level Strategies • A Report on the NACUBO Cost of College Project • NCES Cost of College Study • Changes in Reporting Formats for IPEDS • Changes in National Accounting Standards: New GASB Rules
10:30 a.m. – 10:45 a.m.	*Break*
10:45 a.m. – 12:00 noon	**Problems with Cost Measurement and Management** • Discussion of issues concerning costing methodologies, public perceptions, state requirements, federal and state reporting for mats, and institutional policies and practices • Discussion leaders will include a college president, a private college lobbyist, a researcher, and a state policy expert
12:00 noon – 1:15 p.m.	*Lunch*
1:15 p.m. – 2:45 p.m.	**Lessons Learned from Cost Measurement/Management Policy and Practice** • What have we learned? Is there consensus on key issues? What are the missing components of the equation? • Discussion leaders will include experts in policy and practice from governmental, institutional, and external perspectives
2: 45 p.m. – 3:00 p.m.	*Break*
3:00 p.m. – 4:00 p.m.	**Matching Problems with Solutions** Jane Wellman, Senior Associate, The Institute for Higher Education Policy, Moderator
4:00 p.m.	*Adjourn*

Seminar on Higher Education Cost Measurement and Management

List of Participants

Jonathan Brown
Association of Independent
California Colleges and Universities

Madeleine d'Ambrosio
TIAA-CREF Institute

Evelyn Davila
The College Board

Robert Dickeson
USA Group Foundation

Judith Eaton
Council for Higher Education Accreditation

Edward Elmendorf
American Association of State
Colleges and Universities

Vera King Farris
The Richard Stockton College of New Jersey

Gregory Fusco
Fusco Associates

Darryl Greer
New Jersey Association of State
Colleges and Universities, Inc.

T. Edward Hollander
Rutgers University

Dennis Jones
National Center for Higher
Education Management Systems

D. Bruce Johnstone
State University of New York at Buffalo

Dan Layzell
MGT of America, Inc.

Jennifer Ma
TIAA-CREF Institute

Dewayne Matthews
Western Interstate Commission for Higher Education

Michael Middaugh
University of Delaware

Jay Morley
National Association of College
and University Budget Officers

Diane Oakley
TIAA-CREF

Thomas Parker
The Education Resources Institute

Bill Pickens
California Citizens
Commission on Higher Education

Travis Reindl
American Association of
State Colleges and Universities

Allen Splete
Council of Independent Colleges

Carol Stoel
Council for Basic Education

Mark Warshawsky
TIAA-CREF

The Institute for Higher Education Policy:
Alisa Cunningham
Diane Gilleland
Terry Kush
Jamie Merisotis
Colleen O'Brien
Bill Stringer
Jane Wellman
Thomas Wolanin

96 BEST COPY AVAILABLE